



# College AND UNIVERSITY Business

AUGUST 1956: Financing Construction • Student Registration  
Technics • Sponsored Research Contracts • Prize Kitchen • Campus  
Fire Safety • Installing a Telephone System • University Television

# "8:30 LOOK" at 3:30!



**ALERT** enthusiasm at the close of the classroom day—sustained from the opening—what could be a better indication of ideal conditions for learning?

Think of a class attentive and responsive in mid-afternoon. Contrast this spirit with the restless, strained atmosphere that often prevails in spite of everything the teacher can do. To overcome such a situation, the special physical make-up of children must be considered. They are much more sensitive to overheated rooms than are adults. Their body temperatures are higher. They are frequently overdressed.

So, quite logically, educators are placing more and more stress on *controlled atmosphere*, meaning

healthful temperatures, correct humidity and adequate ventilation. It is in this field that Honeywell, world's largest manufacturer of automatic controls for heating and ventilating, is contributing directly to improved classroom conditions.

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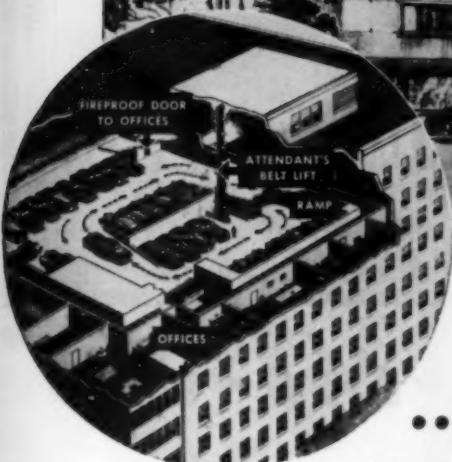
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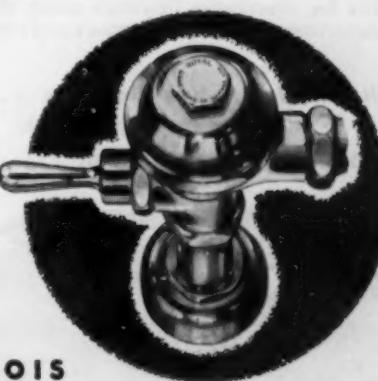
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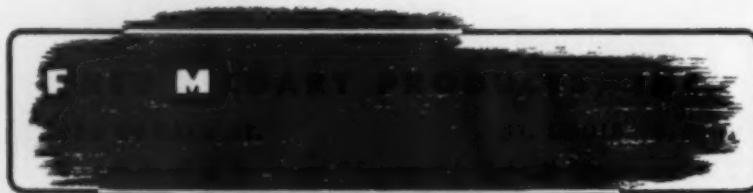
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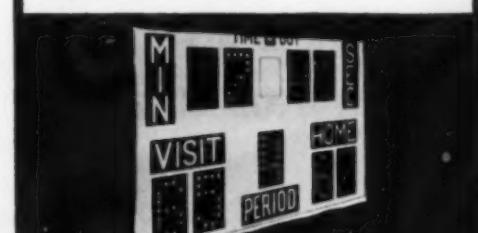
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August 1950

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W. L. Treaster

W. LOWELL TREASTER, director of public relations at Michigan State College, reviews on page 33 some of the work being done in the field of television by various colleges and universities around the nation. The article developed out of a survey of television activities by the American College Public Relations Association. Mr. Treaster had 10 years' writing and executive experience on weekly and daily news-

papers in Kansas before accepting an appointment as assistant extension editor at Kansas State College in 1941. He joined the Michigan State public relations staff in 1944 and was named director of the department in 1946. He has a wife and two children.



Herbert A. Clugston

HERBERT A. CLUGSTON, dean of academic administration at State Teachers College, St. Cloud, Minn., points out on page 35 the technics followed in handling the problem of student registration at the opening of the academic year. Mr. Clugston was on the staff of the University of Colorado for three years before his appointment to the faculty of his present institution in 1931. He has written extensively on educational research and contributed chapters to a book on the psychology of learning which was published in 1935. He likes the outdoor life, particularly fishing and gardening. Now and then he tries his hand at cabinet work and construction but he isn't thoroughly convinced that he has special skill along that line. Actually, his main interest is young people, with whom he has successful administrative relationships on campus.



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Institutions Magazine's annual Food Service Contest has honored Blickman installations 3 years in succession. This year, 4 Blickman installations were awarded prizes.

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# Questions and Answers

## Supervision of Halls

Question: In setting up our operating program for residence halls, we have run into criticism from our deans who maintain that the supervision of the halls should be under their direction. What is the best policy in this regard?—D.H.R., Pa.

ANSWER: In my opinion, the person who is charged with the financial responsibility must have the responsibility for over-all management. Such a line of authority certainly does not and should not preclude a sound educational and social program in the residence halls. On the contrary, the residence halls' social and educational program as developed cooperatively with the president, dean of men, and other top educators and administrators of the institution should be given stability and continuity by reason of the fact that it is a part of a carefully organized program which *can be paid for* from reasonable rates. The prime objective should be the best facilities and best social and educational training obtainable within one's ability to pay for them. In my opinion, top management should be centered in the person who is responsible for the financial integrity of the program.—R. B. STEWART, vice president and treasurer, *Purdue University*.

## Handbook an Asset

Question: It has been suggested that we should establish a staff and faculty handbook relative to institutional policies on vacations, travel, retirement and the like. How effective have such handbooks been in other institutions?—W.F.G., Conn.

ANSWER: The answer to this question is an unqualified affirmative. The first problem met in establishing any institution-wide personnel program is to get campuswide consistency in the application of policies such as here referred to. The next step is to set those policies down in clear and unmistakable language and to see that they are known to supervisors and workers.

If the premise is accepted that a determination of policy is desirable, then certainly its publication should follow automatically. Those institutions

that have made such publications available have found that many questions raised thereafter are settled automatically by referral to the policy; that many of the grievances growing out of inequities of individual treatment have been stopped once and for all; that general orderly procedure has taken the place of varied and inconsistent handling of the employe relationship.—DONALD E. DICKASON, *director of nonacademic personnel, University of Illinois*.

## Justifying Purchasing Agent

Question: Is it possible for anybody to suggest at what point a small college can justify the addition of a full-time purchasing agent as a staff member?—W.T., Wis.

ANSWER: At the point where the cost of the services of a full-term purchasing agent is matched or exceeded by the value of those services, as measured in terms of actual and/or potential cash and labor savings realizable from efficient purchasing procedures. This point, of course, will be governed by a number of factors, such as the physical characteristics of the institution and the personnel and nature of its business and academic organization. These and other factors enter an equation which a competent business officer, with a little study, should be able to solve.—BOARDMAN BUMP, *comptroller, Mount Holyoke College*.

If you have a question on business or departmental administration that you would like to have answered, send your query to COLLEGE and UNIVERSITY BUSINESS, 919 North Michigan Avenue, Chicago 11, Ill. Questions will be forwarded to leaders in appropriate college and university fields for authoritative replies. Answers will be published in forthcoming issues. No answers will be handled through correspondence.

## Space Requirements

Question: Our institution plans to build a new residence hall. Could you suggest minimum or basic standards relative to space requirements for a residence room to be occupied by two students?—R.F.H., Kan.

ANSWER: The committee on the hygiene of housing of the American Public Health Association recommends a minimum of 500 cubic feet of air space per person in rooms used for both study and sleeping in order to provide for the fundamental physiological requirement of atmosphere with reasonable chemical purity. If this standard is applied in a double room with a ceiling height of 8.5 feet, the minimum floor space in a double room, exclusive of closets, is approximately 118 square feet; however, most planners have found this area inadequate for other reasons.

Harriet Hays in her book, "Planning Residence Halls," says that "double rooms should be not less than 200 square feet in area and should be larger than this where possible."

A study of recent residence hall construction in selected institutions of higher learning conducted for the University of Illinois by Skidmore, Owings and Merrill, architects, reveals a range in double room size from 154 to 313 square feet, with most institutions using a standard slightly in excess of 200 square feet.

If double deck beds are employed and if practically all other furniture is built in, floor space in double rooms may be reduced to as little as approximately 150 square feet with circulation space which many persons consider adequate. The arrangement of a room of this type, however, is inflexible, which in a great many instances may lead to serious dissatisfaction on the part of tenants.

If single beds and movable furniture are employed, approximately 200 square feet appears to be a reasonable general standard.—S. EARL THOMPSON, *director of housing, University of Illinois*.



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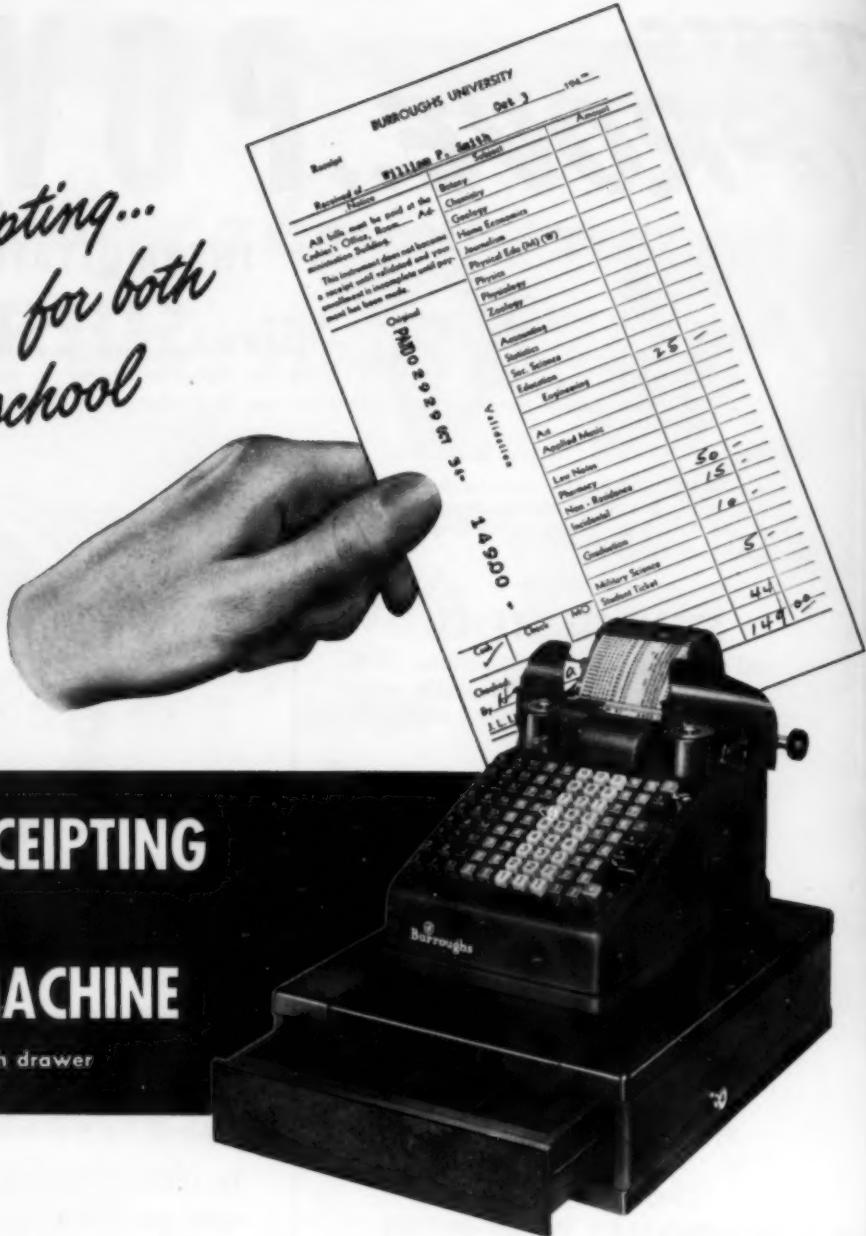
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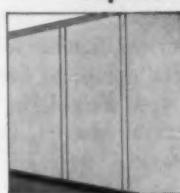
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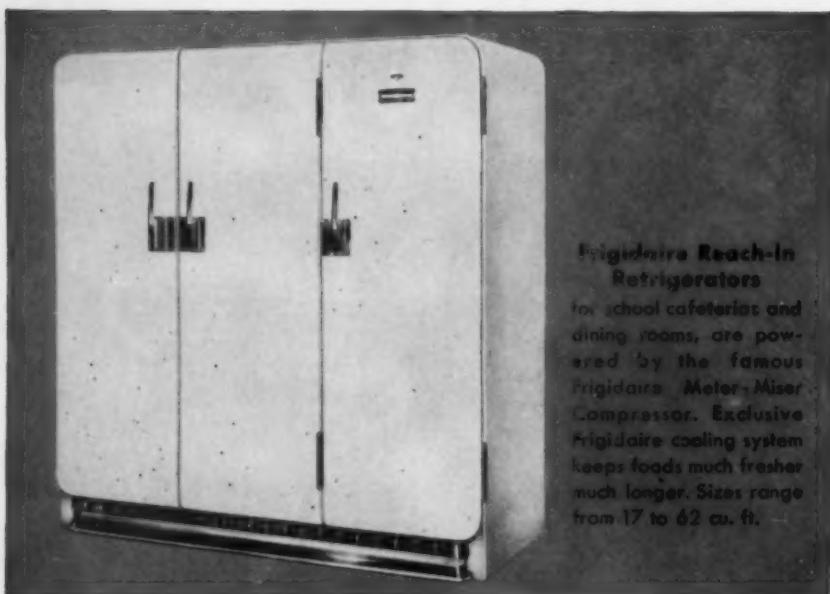
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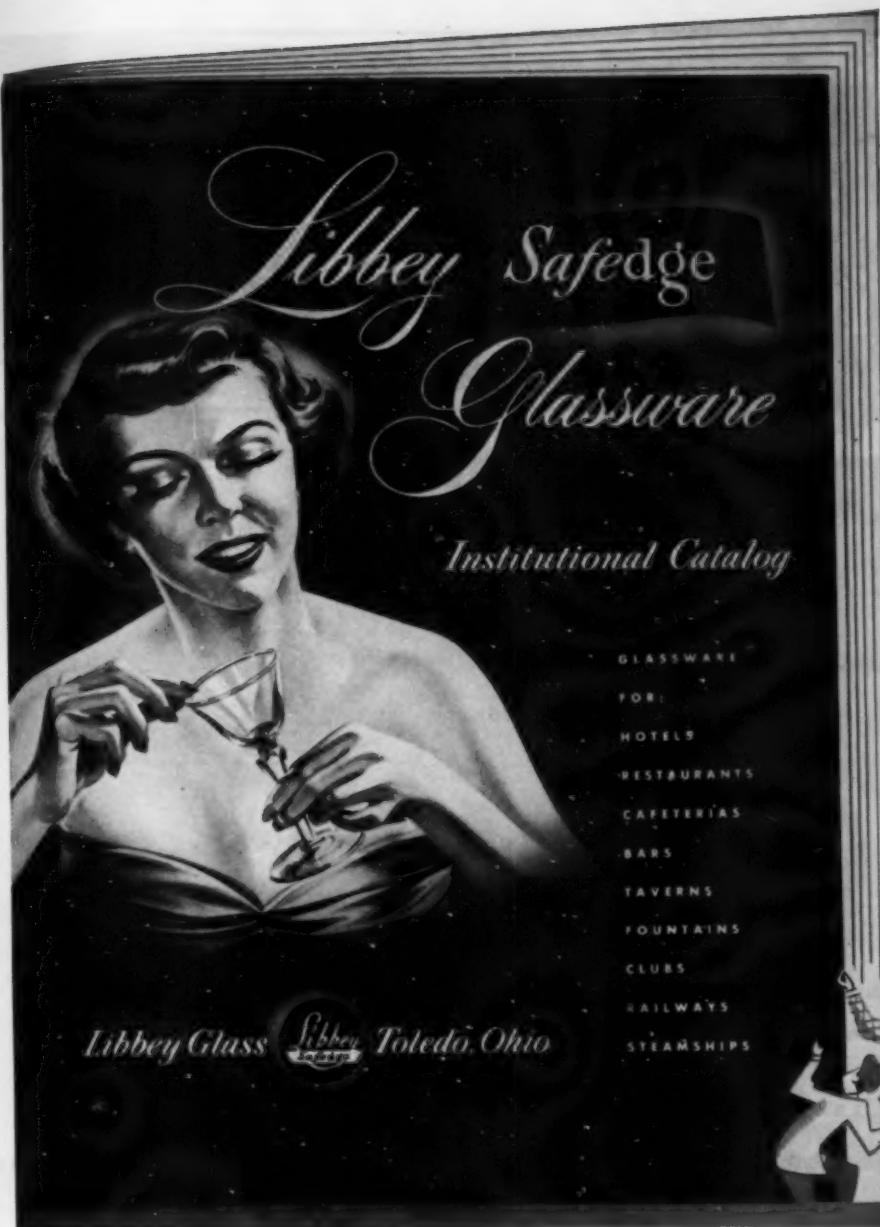
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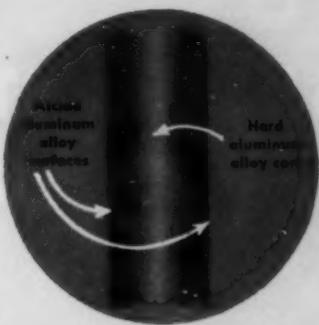
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## WHAT KIND OF FEDERAL AID?

L. A. DuBRIDGE

President, California Institute of Technology



ARE YOU "FOR" OR "AGAINST" FEDERAL AID TO education? Before giving a glib "yes" or "no" answer, it might be well to inquire just what it is we are talking about. Federal aid to education is not a single simple subject; it is a whole complex of plans, suggestions and proposals, some of which are only ideas and others of which are actually now in effect. One may be in favor of certain of these proposals and wholeheartedly opposed to others.

Although the most controversial aspect of the federal aid problem has to do with the support of elementary and secondary school systems, we will confine our discussion to the problems of higher education. Even in this area several types of proposals are to be considered; for example, (1) federal support of university research projects, (2) federal scholarships, and (3) direct federal subsidies to colleges and universities.

A large program of federal contracts for the support of research in universities is now in effect. Precedent for this program was established during World War II when national defense agencies turned to the universities to assist in the development of new instruments and technics of warfare. It is natural that in a period of Cold War the government will still look to the universities for cooperation in carrying on research programs that will contribute to future national welfare and security.

To the extent to which these programs are basic or long range in character and have to do with non-secret activities, they can be incorporated into university programs and be of mutual benefit to the government and to the universities. The program is largely in the hands of military agencies and could collapse from too great an emphasis on immediate practical results or from inappropriate secrecy regulations. Therefore, many favor the National Science Foundation, a civilian agency that can support basic science for its own sake and not solely because of potential military applications.

The second aspect of the problem of federal aid to higher education has to do with a proposal for scholarships to students of proved intellectual com-

petence. The G.I. scholarship program undoubtedly benefited thousands of young people who would have been excluded by economic considerations from this educational experience. As long as it is true that economic barriers do prevent young people of unusual competence from going to college, it is difficult to oppose on educational grounds a competitive scholarship program financed by the government. However, the public must be made to understand that such a program is hardly an "aid to educational institutions." Tuition charges at few colleges and universities cover the total costs of education.

Federal research contracts and scholarship programs would seem to provide mechanisms for aiding the cause of higher education through federal support without bringing the justly feared dangers of federal control of institutions. Other proposals have been made that provide for direct federal subsidies to these institutions. It is hard to see how the federal government, as it now is constituted, can make grants to institutions without exerting some form of control over them. To substitute the present diversity of control of higher education for centralized control by any single agency is to run the danger of destroying an essential feature of American higher education. For this reason, practically no educator has advocated a general program of federal subsidies.

The problem of medical education is especially acute. If Congress should pass any sort of medical insurance program, it probably would be necessary to appropriate funds to help finance an expansion of our medical schools to provide the necessary doctors.

The President's Commission on Higher Education has suggested a program of federal subsidies for the aid of state institutions. It is being vigorously opposed in many quarters because individual states have the same power to levy income taxes in support of higher education as does the federal government, and to substitute state control for federal control would be a dangerous step. General subsidies to private institutions have not been seriously proposed and any such proposal would be actively rejected by the private institutions themselves.

# Looking Forward

## **Business Managers Don't Qualify**

IN OUR JULY ISSUE DR. JOHN DALE RUSSELL outlined 11 criteria to be considered in determining whether college business management can be considered a profession. His observations merit serious review.

In four areas of consideration, Dr. Russell pointed out that college business management falls far short of professional status. Two criticisms, the lack of scholarly preparation and the establishment of standards for entry into the so-called profession, are damning.

How can business managers talk about being members of a profession when they have no required course of study and have no power to control who enters the profession? Most of those now in college administrative posts would admit privately that they drifted into their present posts through a combination of circumstances and not because of specific training for the job. Colleges are hardy institutions, however, and for the most part have survived this sort of administrative experimentation. It is questionable whether the level of college administration has been raised because of operating on this catch-as-catch-can basis.

The time is long overdue when college administrators can talk about being members of a profession. To merit such a designation they must move, and that right quickly, to establish a course of study of professional significance for future college business managers. The brief course offered this summer at the University of Omaha is a step in the right direction—but it's only a step.

If the various regional associations of college business managers want to become more than associations of good fellowship that meet annually, they should address themselves to the problem with more vigor than has been exhibited. A glaring example of procrastination and delay has been the much discussed "Manual on College Business Administration" which has been in process for 10 years. The completion of the project has had to depend on the "marginal time" of busy and overworked administrators. Hardly the "professional" way to approach a problem of this sort!

Without a recognized course of study for potential college business managers, it is almost impossible to establish a set of standards against which to measure candidates for administrative positions in the college business office. Obviously, the establishment of a professional course of study is the first item of business before one can set standards or control those who enter the field of college business administration. Is there any institution or association ready to accept the challenge?

Until some of these fundamental first steps are taken, college business managers are kidding themselves when they talk about their "profession." What is gained by such self-delusion, unless it is merely the satisfaction of one's ego?

## **Reorganization Plan Defeated**

PRESIDENT TRUMAN'S REORGANIZATION PLAN No. 27 received the rejection it deserved by the House of Representatives early in July.

This plan, calling for a new Department of Health, Education and Security, with its secretary becoming the tenth member of the Cabinet, was severely criticized by both medical and educational leaders. Educators were of the opinion that the U.S. Office of Education would lose all its identity and effectiveness and become so subordinate in the work of the Federal Security Agency as to become nothing more than a political arm of government.

Coupled with these fears was the concern regarding the activities of Oscar Ewing, the likely candidate for appointment as secretary of the Department of Health, Education and Security. In many public utterances on the subjects of health and education, Mr. Ewing has given more evidence of political ambition than of an appreciation of education as a nonpartisan and cultural factor in our society.

## **No Time for Vanity**

IN THESE DAYS OF HIGH COSTS AND LOW RETURNS from investments, it is important that college administrators carefully evaluate the future needs of their institutions. A race to "keep up with the Joneses" through additions to plant facilities can be financially ruinous.

Military developments in Korea point up the suddenness with which events can take place that may exert a strong influence on college planning. Any protracted continuation of hostilities may have serious effect upon enrollment figures for the coming year and must be given prompt consideration in future plans. The institution management that has not overextended itself with costly commitments in building and construction may find itself able to adjust more readily than the college with a vast program "in work."

This is not to suggest the elimination of all experimentation and pioneering, but it is a word of caution to those who would encumber their institution with unnecessary indebtedness.



ALMOST EVERY INSTITUTION EITHER is in the process of building a new building or is trying to raise money in order to do so. To learn what colleges and universities were doing about financing this new construction, I sent a questionnaire to 25 of their business officers on the subject.

There seems to be no definite pattern as to what colleges are doing in this regard, but all seem to believe that buildings must be constructed to take care of increased enrollments and to replace temporary and antiquated buildings.

The classes of institutions may be roughly divided into private, religious or public. Each has distinct characteristics and hence the approach to the problem of financing new buildings is different in each case. Private institutions may seek gifts, may borrow, use endowment funds or reserves. Religious schools also can resort to religious bodies for help, while public institutions, whether state or municipal, also have access to sources of taxation.

Whether money is obtained from gifts, by borrowing, or by use of endowment funds or reserves, the type of building also enters into the problem. Normally, academic, service and administration buildings are thought of as nonrevenue producing, residence halls and faculty housing as self-sustaining, while research and student unions may be either or both.

I have not concerned myself with the question of financing buildings by gifts, for this, in a sense, is not financing in the usual concept of the word, nor am I concerned with appropriations for buildings in the case of public institutions. I am concerned: (1) with the possible source of funds; (2) with borrowing, if neces-

From an address given before the Eastern Association of College and University Business Officers, 1949.



## Methods of **FINANCING** **NEW CONSTRUCTION**

**WILLIAM P. DAVIS**  
Treasurer, Oberlin College  
Oberlin, Ohio

sary, and (3) with the problem of repayment, if funds are to be borrowed.

There seems to be a great difference of opinion as to whether or not endowment funds rightfully may be used for building purposes. Some institutions would not think of using their endowments for this purpose, while others have been doing it for decades. Oftentimes unrestricted funds that have been placed among the endowments by trustees could, by the nature of the gift, be used to erect buildings. Some institutions have used such funds outright or have used them

with the idea of repaying them either with or without a definite repayment program.

Those institutions that have not seen fit to use funds in this way might well afford to scrutinize their endowment funds with the hope of finding some that might be used in this manner. However, unless a program of repayment is set up and interest charged for the use of the fund, the budgeted endowment income of the school naturally will be reduced. In addition, each new building adds to the over-all maintenance cost. Before embarking on such a program, it

would be well to study carefully all angles of the problem.

Some institutions have been fortunate enough to build up a reserve for future investment losses, which really amounts to an accumulated profit obtained from the sale of investment assets. In the case of Oberlin College, a sizable sum has been obtained in this way. Rather than use this reserve outright the trustees voted to set aside from the pooled investment account \$1,000,000 of government bonds which were hypothecated to a five-year commitment and bank loan of \$900,000. This loan, of course, will have to be refunded from time to time. The income on the bonds still is being used as endowment income, while the interest on the loan and amortization of 3 per cent per annum is being charged as a budget expense. It was by this device that the college was able to build a heating plant and service building, both desperately needed.

#### PLAN HAS ADVANTAGE

If the plan can be carried out as provided, the hypothecated bonds gradually will be restored to the reserve for investment losses over a period of 33½ years. This plan has a definite advantage over actually using up the reserve, although it may become necessary to sell the bonds to pay off the bank loans in case government bonds suffer severely market-wise or if the college finds itself unable to budget sufficient sums to service the loan.

Another institution has been using its investment profit reserve to finance auxiliary enterprises with considerable success, restoring the advances from the profits of the enterprises borrowing the money.

In some cases institutions have been fortunate enough to pile up surpluses, either from the academic budget or from auxiliary enterprises, in an amount sufficient to build additional buildings. These surpluses, if used, may or may not be set up as an internal loan, depending upon whether or not it is thought wise to restore such funds.

In a few cases annuities have been used to erect buildings, the institution being permitted to make use of the funds in this manner and thereby, in effect, guaranteeing the payments to the annuitants during their lifetime from the general income of the school. It is surprising that more institutions

have not resorted to this somewhat hazardous method of financing. Unfortunately though, from a financial standpoint, annuitants often live to a ripe old age.

With the falling off of gifts, educational institutions are turning more and more to the use of borrowed money. This trend is fraught with danger. Some treasurers apparently believe it is almost immoral to borrow money; others think nothing of putting out bond issues. Dr. Robert Bruce Stewart and Roy Lyon of Purdue University in their recently published book on "Debt Financing of Plant Additions for State Colleges and Universities" list the reported causes of defaults in connection with bond issues put out by state colleges and universities. Some of these bond issues were sold during the prosperous Twenties and defaults occurred in a few cases in the following decade of depression. During the depression enrollments fell off, competition for student housing developed from outsiders, receipts of gift money fell off, building pledges were not paid—all of which reduced the income applicable to the servicing of these debts.

It makes little difference, in the matter of the borrowing, which of

overnment has pretty much gone by. However, I suggest that those interested refer to Public Law 475, Title IV, Sections 401-404, concerning the \$300,000,000 loan in connection with housing for educational institutions. (EDITOR'S NOTE: On July 18 President Truman postponed this program because of the Korean crisis.)

Institutions, particularly the public ones, may borrow by issuing bonds which may be sold either to private individuals or to the public at large. Public institutions, of course, have the advantage of issuing tax-free bonds which by their nature carry a lower interest rate than is commonly obtainable elsewhere.

#### SHREWDNESS A NECESSITY

Actually, there is little difference between borrowing from any of these sources. The loan usually carries with it interest, some definite method of repayment, some form of security, in the nature of either a mortgage, hypothecation of securities, or merely the general credit of the school. In any event, the lender expects repayment on the terms set up at the time the loan is made. Naturally, the lender tries to make sure that the terms can and will be met. This is a business proposition where shrewdness is needed.

The college business officer should make sure that he gives as little security as possible to the lending agency in order to be in as flexible a position as possible to keep the institution solvent. In the last depression it was necessary for some educational institutions to hypothecate future tuition receipts to pay running expenses, and the time may come when such borrowing will again become necessary. Such security cannot be pledged again if it has already been hypothecated.

Not a great deal of experience has been had in seeking loans of this character except by publicly supported schools. Church borrowing has been common and the lenders have relied not so much on the value of the church building as on the pride and responsibility of the parishioners. This also is true of church controlled or partly church supported educational institutions. However, the pride of the alumni of an educational institution is not as personal as that of church members. On the other hand, while most churches have little or no endowment, most colleges and universities



the various sources are used. In the case of individuals, usually such people are friends of the school. If banks or insurance companies are to be used, it is well to shop around, contacting not only those with which the college or university does business, but also others. In recent years there has been a tendency to lengthen loans which are made by both of these lending agencies.

The day of receiving aid from the several agencies of the federal gov-

have, by comparison, substantial endowments in varying amounts.

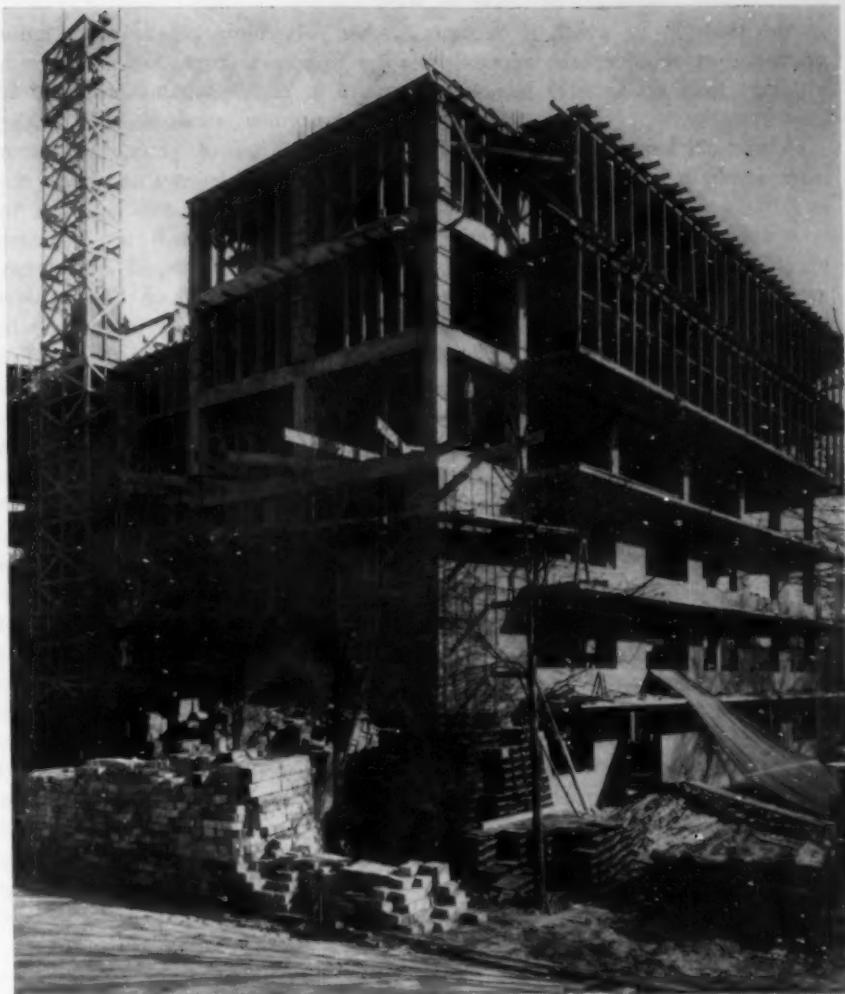
Loans to a business corporation are made upon the authority of its directors, granted by its charter, by-laws and stockholders. Loans to an educational institution are made upon the authority of its trustees or regents, restricted only by its charter and by-laws. The trustees of many private colleges have less restriction in the investment of their funds than have ordinary trustees. The problem of the trustees is complicated by the fact that they usually have at their disposal an endowment fund which may be used either directly or indirectly in obtaining the loan, or by actually investing the endowment fund itself in the new building. Thus, trustees in being able to resort to the endowment funds of the institution easily may be led astray by improvident borrowing. In other words, educational institutions are in a position to borrow substantial sums of money, but it speaks well for them that not too many have resorted to this practice.

A number of schools have embarked on a program of starting a building program before all the funds were in hand. This is dangerous, for building costs have a tendency to increase, gifts may not materialize to the extent hoped for, and the borrowing of money may be more expensive than was at first believed possible.

One institution arranged to borrow 73 per cent of the cost of a faculty housing project, but when it was completed the loan percentage was reduced to 60 per cent, the university putting up the difference because of increased costs.

In the case of Oberlin College, we have put considerable investment money into residence halls and the rehabilitation of houses purchased for faculty use. We have tried, however, in each instance to put endowment funds into such buildings on a strictly investment basis, relying on other sources—usually gifts or surplus funds—to put in the so-called equity money.

Another institution fully expects to pay off a \$1,000,000 advance from unrestricted endowment funds to build an addition to an existing residence hall costing \$1,750,000, using \$750,000 obtained from gifts. This is its initial borrowing experience, undertaken reluctantly and as a substitute for borrowing money for a completely new building as originally planned.



Progress photo of student apartment building at Georgia Tech.

Some institutions have temporarily advanced current funds with the intention of repaying them or, if caught short, to resort to bank loans. This is dangerous, though several schools were able to restore them with gifts, with income from the buildings erected, or by outside borrowing.

#### EARNINGS INSUFFICIENT

In the case of borrowing money for self-sustaining buildings, such as residence halls, the original concept, I believe, was to rely on the earnings of the building for which the money was borrowed. Oftentimes this is not sufficient and a general pledge is made of all the earnings from this source. Publicly supported institutions have led the way in this type of financing.

The repayment of the principal of a loan is so closely allied to the payment of interest that it is really part and parcel of the same thing. The source of the payment of each usually stems from the same income. In the case of a nonrevenue producing build-

ing, the payments to be made are usually a charge on the general income of the school, while in the case of self-sustaining buildings, at least the major part of the payments is expected to come from the income of such buildings.

Self-sustaining or revenue-producing buildings should provide the completion of the loan repayment program. But herein lies the hidden danger. No matter how carefully the program is set up, there is no guarantee that conditions may not change over a period of years. Expenses of operation may increase, income may be reduced, for the best of plans do fail. One institution in 1945 put \$500,000 of endowment money into prefabricated houses, expecting to amortize this partial advance from earnings in 15 years. Earnings dropped from 2½ per cent in the first year to 1 per cent thereafter, and the amortization program must, therefore, be lengthened. Generally speaking, if this occurs any institution may find itself

in the position in which it becomes necessary to shoulder the repayment program from its general income, at least in part.

One school started investing endowment funds in residence halls as early as 1916 and in that manner now houses about 2000 students. Over the years the net returns on this investment have been satisfactory, about equaling the return on the other investments. Another school is planning to use \$2,000,000 to build a new residence hall, but the treasurer is not at all sure that present-day rentals will amortize such an advance from endowment funds. Few schools in the past expected student charges for room and board to carry any cost of financing residence halls.

Before embarking on too large a program for building additional buildings, real thought should be given to the optimum size of enrollment. The economic pinch may reduce enrollments more than is anticipated. It is cheaper to set up a spare bed than to build on a new room. A loan is oftentimes easily made but dreadfully hard to repay.

Many people have the impression that the rate of interest is of first importance and will do everything they can to keep the rate as low as pos-

sible. The same people often ignore the important part that amortization plays in their payment program. Interest payment totals do pile up over a long period of years, but annual payments must be met no matter how much of the payments goes for interest and how much for principal. Loans with flat or equal annual payments during the life of the loan show some startling results and a careful study should be made of them before deciding upon the ideal plan to be adopted.

How many realize that with equal monthly payments, \$1000 can be borrowed at 4 per cent for 15 years, whereas about \$1400 can be borrowed at 4 per cent for 25 years? Thus, the length of the loan is of great importance. Generally speaking, the longer the term of the loan, the higher the interest rate.

Oberlin College has seen fit to borrow \$900,000 on a short-term basis to build buildings, while another institution has been using short-term bank loans of \$1,200,000, refunded from time to time, to finance faculty housing and apartments, expecting eventually to retire the indebtedness in 10 and 40 years.

This is contrary to the usual practice. Normally, short-term borrowing

is for current use. However, the low interest rates obtaining for short periods, available to those institutions having a prime credit rating or government bonds available for collateral, are sorely tempting. There is the same danger in this kind of financing, however, that an individual runs who resorts to this type of borrowing in building a house as compared to a man who is content to pay a higher rate of interest for a mortgage loan. Should interest rates stiffen or current loans be called, the school or man with a long-term loan is in much the better position.

I have purposely omitted the *modus operandi* of actually borrowing money. Dr. Stewart's and Mr. Lyon's book goes into detail as to what a state institution must do to borrow. Many of the steps necessary for a private institution are the same. Reference to this book might well be made by any business officer or legal counsel whose institution is planning to seek a loan. Help, of course, can be obtained from the school's finance committee, but the business officer still must make sure that the best interests of his institution are being protected, for he cannot escape the responsibility in doing his part to keep his institution solvent.

### Continuing Survey of Building Costs Conducted by College and University Business

College	Function of Building	Type of Construction	Total Cost	Total Cubage	Cubic Feet	Contract Cost for			Approximate Wage Rate					Date of Contract	
						Gen. Construction	Heating, Plumbing	Electrical	Electricians	Brick-layers	Masons	Plumbers	Carpenters		
UNIVERSITY OF CALIFORNIA Scripps Institution of Oceanography, La Jolla	Aquarium and Museum	Reinforced concrete	Bldg. not completed	14,374 (sq. ft.)	.....	\$208,890	Not segregated	.....	\$2.80	\$2.50	\$2.20	\$2.75	\$2.12	Jan. '50	
Scripps Institution of Oceanography	Service Buildings and Service Yard	Reinforced concrete block	Bldg. not completed	.....	.....	68,480	Not segregated	.....	2.80	2.50	2.20	2.75	2.12	Oct. '49	
Citrus Experiment Station, Riverside	Shop and Heating Plant	Concrete block	\$228,432	95,925	\$2.38	64,512	\$44,657	\$3,900	\$22,011	2.25	2.50	2.10	2.50	1.90	May '48
Citrus Experiment Station, Riverside	Insecticide Lab.	Reinforced concrete	411,938	220,551	1.36	170,503	78,582	39,549	22,606	2.25	2.50	2.10	2.50	1.90	Dec. '47
Imperial Valley Field Station, Meloland	Office and Lab.; Laborers' Cottages; Staff Residences; Pump Machinery and Seed Houses	Concrete block	306,092	281,003	1.13	152,356	23,470	27,675	8,720	2.30	2.25	2.10	2.50	1.90	Jan. '48
Univ. of Idaho	Administration Building	Reinforced concrete; brick face	302,440	251,000	1.20	207,847	\$45,929	38,196	2.35	2.50	2.50	2.25	2.00	Mar. '50	
Univ. of Idaho	Agricultural Science Bldg.	Reinforced concrete; brick face	744,300	784,282	0.97	522,177	138,755	41,236	2.35	2.50	2.50	2.25	2.00	May '49	
Univ. of Idaho	Engineering Lab. Bldg.	Reinforced concrete; brick face	224,566	260,000	0.86	137,708	25,500	50,617	2.35	2.50	2.50	2.25	2.00	June '49	
Univ. of Idaho	Engineering Classroom Bldg.	Reinforced concrete; brick face	505,278	631,000	0.80	409,984	42,826	28,407	2.35	2.50	2.50	2.25	2.00	Sept. '49	
Univ. of Idaho	Student Union; Offices and Recreation	Reinforced concrete; brick face	487,428	445,000	1.00	371,247	73,444	19,525	2.35	2.50	2.50	2.25	2.00	May '49	

ON MAY 25, 1950, THE UNITED States Tax Court in Washington handed down a decision awaited with much interest by college and university business officers. The court ruled that the C. F. Mueller Company, nationally known macaroni manufacturer, cannot claim tax-exempt status under section 101 (6) of the Internal Revenue Code, despite the fact that its certificate of incorporation states that it was "organized exclusively for . . . educational purposes and no part of its income or property shall inure to the private benefit of any stockholder, director or officer, or any individual or corporation other than New York University, for the exclusive benefit of its school of law."

Judge Murdock stated:

"One cannot say properly that a corporation was organized and operated *exclusively* for educational purposes where, as here, one of its important purposes was to conduct a large commercial business for profit, competing with other similar corporations all subject to tax, and where the operation of that business is not merely incidental to the conduct by the same corporation of any other overshadowing exempting activity.

"It is the opinion of this court . . . that Congress recognized the generally understood difference between corporations like the petitioner and corporations like universities, hospitals, religious orders and churches and did not intend to include corporations like the petitioner in the class to be exempt under section 101 (6)."

Since 1905 the C. F. Mueller Company has been engaged in the manufacture and sale of macaroni and similar products. Upon the death of its president in 1946, H. T. Sorg, a promoter, with no connections with New York University, conceived the idea of acquiring the stock of the company on behalf of the school of law of the university. He obtained the active support of the dean of the school of law and certain other members of its alumni. In 1947 the new corporation was formed to acquire all of the outstanding stock of the old company at a price of \$3,495,057.60, financed by a 15 year loan of \$3,500,000 from the Prudential Insurance Company. Incidentally, the agreement included a commission of \$124,250 payable to Sorg.

The magnitude of the business conducted by the corporation may be

## TAX EXEMPTION and its abuse

T. E. BLACKWELL

Treasurer, Washington University  
St. Louis



gauged by the fact that its sales for the year 1947 amounted to more than \$9,000,000. The only tax in litigation was that based upon the net income of \$359,890.51 earned during the short period from the date of the incorporation of the new corporation on Aug. 28, 1947, to Dec. 31, 1947. During 1948, the corporation distributed \$75,000 to the university for its school of law and paid off \$600,000 of its Prudential loan.

This is an important test case, involving the tax fate of several hundred similar business ventures of educational and charitable organizations. The decision of the tax court undoubtedly will be appealed.

In attempting to predict the probable decision in the upper courts, one must give careful consideration to the dissenting opinion of Judge Opper. He points out that the Roche's Beach case,<sup>1</sup> decided in 1938 by the second circuit of the United States Court of Appeals, had been based upon facts almost identical with those involved in the Mueller case. Roche's Beach, Inc. was organized as a nonprofit corporation in 1930 for the purpose of operating the resort beach property of Edward Roche, with net income payable to the Edward and Ellen Roche Foundation for charitable activities. The following excerpt is from the majority opinion in that case:

"No reason is apparent to us why Congress should wish to deny exemption to a corporation operated exclusively to feed a charitable purpose when it undoubtedly grants it if the corporation itself administers the charity."

The dissenting opinion of Judge Hand in the Roche case is also significant in this analysis:

"I believe that when, however actuated, an exempt parent does resort

<sup>1</sup> *Roche's Beach, Inc. v. Commissioner*, 96F (2d) 776.

to a business subsidiary, any income so obtained becomes taxable."

On April 6, 1950, the United States Court of Appeals for the seventh circuit, in the Universal Oil Products case,<sup>2</sup> foreshadowed the shift of the judicial trend away from the reasoning inherent in the Roche case and in the earlier Sagrada case.<sup>3</sup> The Universal Oil Products Company was organized by seven of the larger oil companies to develop and exploit patents and patent rights in the field of petroleum products. Prior to Oct. 24, 1944, all of its stock was owned by the oil companies. On that date, its stock was placed in trust with the Guaranty Trust Company of New York, with the American Chemical Society named as beneficiary of the trust, the income to be used for education and research.

The court, in declining to grant tax-exempt status, pointed out that the beneficiary of the trust, during the three years in question, *i.e.* 1944-46, received only \$147,325, although the net income of the corporation was in excess of \$7,000,000. Moreover, the oil companies, representing 65 per cent of the oil refining capacity of the United States, "had the right to use, and did use, royalty free, the inventions under the patents owned by the corporation." The court in reaching this conclusion relied upon the reasoning in the Underwriters' Laboratories<sup>4</sup> case, in which it had been held that, despite the nonprofit recitals in its charter, the primary and major reason for its organization and operation had been the desire to promote the financial and business interests of its organizers.

<sup>2</sup> *Universal Oil Products Co. v. Campbell et al.*, F (2d).

<sup>3</sup> *Trinidad v. Sagrada Orden de Predicadores*, 263 U.S. 578 (1924).

<sup>4</sup> *Underwriters' Laboratories v. Commissioner*, 135F (2d) 371 Cert. denied 320 U.S. 756.

Who should pay the overhead on

# SPONSORED RESEARCH . . .

**G. W. GREEN**

Business Manager  
California Institute of Technology



IN 1947 IT APPEARED THAT, AT LAST, the vexing problem of overhead on government sponsored research had been resolved by issuance of the directive entitled "Explanation of Principles for Determination of Cost Under Government Research and Development Contracts With Educational Institutions."

These principles were the result of the excellent efforts of a committee comprised of representatives of the colleges and representatives of the military branches. They were premised upon the sound realization that the philosophy of government sponsored research in the universities should be one of "no loss — no gain"; in other words, that the institutions should be reimbursed for both direct and indirect expenses. In addition, the Principles offered uniformity in treatment of the institutions by establishment of a guide, or formula, designed to produce an equitable percentage allowance for reimbursement of indirect costs.

The Principles may not be the perfect solution. If you represent the government, you may contend that they favor the institutions; if you represent the institutions, you may contend that they favor the government. Nonetheless, they offered an acceptable compromise that received the approval of the comptroller general. Here, at last, was a yardstick that many business officers of educational institutions felt would relegate overhead to the category of a routine problem of computation. Since 1947 the military establishments and the colleges have adhered to the Principles. Recognition of indirect costs in the Armed Services Procurement Regulations of May 1948 further supported the Principles, and it appeared that inclusion of an overhead allowance had become a matter of standard contract procedure.

However, despite the Principles and the Armed Services Procurement Regulations, there has been a growing tendency in government circles to question the propriety of complete re-

From a paper presented at the annual meeting of the Western Association of College and University Business Officers, May 1950.

imbursement to the institutions for government sponsored research. This feeling seems to express itself primarily in connection with overhead allowances. There are those who contend that, if any indirect expense is allowed, it should be no more than a token amount with the university contributing the remainder.

Much of the difficulty stems from terminology. The word "overhead" has assumed unfortunate implications. In industry overhead is recognized and accepted, but in colleges and universities the word is frequently construed to imply unnecessary expense and, in some instances, even hidden profits. Actually, university overhead is nothing more than the term used to describe the general costs of administration, operation, depreciation on facilities, to name a few, that are essential to the instruction and research programs conducted in the institutions. Direct distribution of these expenses is not practical. Hence, recovery by means of a percentage allowance is the feasible method.

#### INSTITUTIONAL EXPENSES

No one can contest the obvious need for incurrence of administrative and operational expenses in an educational institution any more than he can argue the necessity for such costs in running, for example, a government bureau or an industrial concern. It is impossible to visualize a college without a president's office, a registrar's office, a buildings and grounds department, an accounting office, with attendant clerks, secretaries, janitors, carpenters, plumbers, painters, watchmen and a dozen other employe categories. The expense of these departments is as directly related to the cost of instruction and research as are the salaries of the faculty teaching in the classrooms or performing in the laboratories.

The factors comprising overhead are obvious. Furthermore, faculty personnel engaged in administering and conducting instruction and research has come more and more to recognize indirect expense as an inescapable companion to direct cost of any program, irrespective of its magnitude. Representatives of the government consistently admit the existence of this indirect burden in the colleges. The question, then, is not whether overhead exists, but who shall pay for it—the institution or the sponsor; in full or in part?

An institution performing sponsored research can do one of two things: it can assume all, or a substantial part, of the cost of administration and operation of such projects, or it can require that the sponsor reimburse, as an integral part of the cost, a proportionate share of indirect expense.

It is true that universities, at one time or another, accept grants without overhead recovery or with no more than a token allowance. However, the number of such grants that can be accepted is limited by the institution's ability to support, from unrestricted income, the indirect costs incurred in excess of the allowed recovery. Acceptance of an unlimited number of such grants can soon make an institution "grant poor." Privately endowed institutions are particularly cognizant of this since they are acutely aware of the strain placed on unrestricted income.

Income from tuition, unrestricted endowments, and free gifts is ordinarily no more than sufficient, if that, to meet the demands placed thereon. Such income is needed to defray the direct costs of instruction, which greatly exceed the tuition charged, and the direct costs of unsponsored research requisite to the university's normal objectives. In addition, unrestricted income must be used to cover the indirect costs of administration and operation required for the university's program.

Effectively, there is no difference, insofar as the university is concerned, between assuming the indirect expenses of a sponsored program and assuming part of its direct costs. No matter how you label it, the expense remains a cost of the project. Hence, an institution's participation in sponsored research—government, industrial or private—is directly limited to its ability to pay for its participation. The general tendency, however, is to obtain the institution's participation by removing the overhead allowance, or reducing it to token recovery, for sponsored research.

The philosophy of token reimbursement for overhead has been advocated by the Atomic Energy Commission with respect to certain programs it elects to support. To complicate the matter, A.E.C. has introduced two new terms: "programmatic research" and "nonprogrammatic research."

"Programmatic" is used to describe

a project that is primarily of interest to the A.E.C. and is directly related to the military and other program objectives of the A.E.C. For such projects, the commission is willing to negotiate the overhead recovery allowance.

"Nonprogrammatic" refers to projects primarily of interest to, and initiated by, the institution. For the latter, the commission proposes to allow a maximum overhead recovery of 8 per cent of total costs. Further, the A.E.C. has stated that, even for the negotiated allowance in programmatic



#### ... the university or the sponsor

contracts, determination of overhead in accordance with the Principles is not acceptable inasmuch as the Principles are considered unduly generous to the educational institutions and, hence, are not defensible before the public.

This seems a curious conclusion for any government agency to reach since the government must assume all costs, direct and indirect, for research carried out in our national laboratories. Further, the government is known to reimburse private industrial laboratories for all costs, plus a reasonable profit. Yet the commission finds the formula accepted by the military and the comptroller general overly generous to the nonprofit institutions and open to public censure. The logic

in this reasoning is difficult to detect.

Classification of research as programmatic and nonprogrammatic, except for internal purposes of the A.E.C., is unrealistic. The differentiation is not based on whether the research is basic or applied (either type can fall in either category) but rather seems to resolve itself on the question of which party has primary interest in the work. The definitions, then, are paradoxical since mutual interest should be the only reason for the institution's acceptance and the commission's support of the research.

To attempt to measure the degree of interest for either party is not feasible. If, as the A.E.C. has indicated, payment for indirect nonprogrammatic costs is indefensible before the public, does it not follow that payment of *any* portion of direct nonprogrammatic programs places the A.E.C. in an equally untenable position? In short, if a project should be supported at all by A.E.C., it must be programmatic insofar as the public is concerned, notwithstanding the fact that A.E.C. may wish to use special nomenclature for internal differentiation of the various research projects it sponsors.

#### POLICY LIMITS RESEARCH

Many institutions are experiencing difficulty in negotiating contracts with A.E.C. as a result of its overhead policy. To favor programmatic research by paying full costs while insisting that universities assume a substantial share of nonprogrammatic research will inevitably reduce the amount of basic research that can be undertaken by the institutions. They will be able to do some fundamental work under contracts labeled programmatic but simply will not have the resources to contract for additional nonprogrammatic basic research.

A decrease in the amount of basic research performed in the universities will have one of two results. First, in order to maintain the present level, the national laboratories will be compelled to do considerably more basic research. This would be an undesirable outcome, since many types of basic research can be performed more effectively and more efficiently in educational institutions. Further, the full complement of scientists and technicians now available to government through issuance of acceptable contracts will be withdrawn as a source of supply. Nothing will be gained by

the government since full financial costs, indirect and direct, for programmatic and nonprogrammatic, will accompany expansion of the national laboratories to assume the programs rejected by the universities.

If the national laboratories are unable to increase fundamental research for lack of either qualified personnel or sufficient funds to support such work on a more extensive basis than under contract to the institutions, the second result will be a notable decrease in the total amount of basic research performed in the country. This would be even less desirable, since, as many scientists have emphasized, insufficient basic knowledge may well prove the limiting factor in the country's over-all scientific and technical progress.

#### FEDERAL RESEARCH BENEFITS

It cannot be denied that the educational institutions, with their highly trained staffs and plant facilities, have contributed in marked degree to the government research effort. This contribution has been possible because the universities have been financially, as well as technically, strong. If the current position of the A.E.C. were to be adopted by government in all of its agencies, forcing rapid and substantial curtailment of university participation in the national research program, the eventual effects must not be underestimated.

The necessity for consistent treatment of overhead expense in all institutions by all branches of the government seems self-evident. This, of course, is what the Principles were designed to accomplish. Conversely, it is essential that the institutions avoid preferential treatment of any single government agency. We cannot negotiate with the A.E.C. on a basis of partial cost recovery and continue to expect the military establishments to adhere to the Principles. Uniformity must be attained. Adoption of the A.E.C.'s position by all branches is one way; acceptance of the Principles by A.E.C., at least until a better method is developed, is the other.

So far, only the importance of equitable reimbursement for government sponsored research has been emphasized. In recent years, government has emerged as the largest single source of support in the research field, and the magnitude of its programs best illustrates the impossibility of expect-

ing the institutions to bear large portions of the costs. However, it must be pointed out that acceptance of large foundation grants or large industrial research projects, without provision for sufficient reimbursement of indirect costs, can lead to the same results. When a university has accepted the number of grants, large or small, in which it can afford to share a part of the costs, in order to remain in sound financial condition it must reject additional support, irrespective of source, unless adequate recovery of costs is offered.

One large foundation, cognizant of this problem, recently has developed a formula to determine total costs of conducting a sponsored research program. The formula recognizes all direct costs and, in addition, provides a mechanism for determining a fair proportion of indirect costs. This foundation's formula admits certain factors in the computation of indirect expense that are not allowed by the Principles. One is the allowance in the formula for college departmental, or divisional, administrative costs. Another is the inclusion of a factor for loss of income on capital outlay for plant facilities.

The foundation proposes to pay 90 per cent of the total costs, direct and indirect, leaving 10 per cent to be assumed by the institutions. This does not offer complete recovery of costs, but it is a most encouraging development with respect to sponsorship of research by foundations.

#### WILLING TO PAY ITS SHARE

Industry's cost consciousness leads it more readily to recognize the necessity for full, or at least reasonably complete, reimbursement. Negotiation of research contracts with industrial organizations rarely, if ever, involves difficulty insofar as an allowance for indirect expense is concerned. The added cost attendant to the direct allocation of general expenses is understood by the industrial sponsor and, as long as the percentage can be supported by a reasonable computation, industry is willing to pay its share of indirect costs by a percentage allowance. Whenever a project is absorbed as an integral part of the university's program, no set of rules or method of computation, including the Principles, will result in exact recovery of all costs.

Participation by the institutions in the cost of sponsored research is un-

avoidable. For example, referring to the Principles, the value of plant facilities made available to the sponsor can far exceed the allowance for depreciation, based on costs, provided for in this overhead formula. Further, institutions participate in numerous ways difficult to measure in dollars. For instance, in making available competent scientific staffs for performance of the work, liability to faculty personnel is assumed by the university for benefits of tenure.

Even though universities follow the practice of charging faculty salaries to sponsors, oftener than not the fraction charged is less than the time actually devoted to the program. Further, it must be remembered that for each dollar of direct salary so contributed, the applicable percentage of indirect expense also is contributed.

To illustrate, in an institution operating on an overhead rate of 40 per cent of salaries, a permanent faculty member earning \$8000 and working half time directly on sponsored research for which no charge to the sponsor is made represents a contribution of \$4000 plus 40 per cent, or an additional \$1600.

The propriety of charging any portion of a faculty member's time direct to sponsored research has been questioned by some government representatives. Admittedly, there will be instances wherein it will not be feasible or desirable to allocate any portion of a faculty member's salary to a sponsored project. However, there appears little basis for denial of the admissibility of such charges as a part of direct costs. The time of the faculty devoted to sponsored research reduces the man-hours available for conducting the institution's own instruction-research program.

#### JEOPARDIZES OWN PROGRAM

Overassignment of faculty members to sponsored research must eventually require that additional personnel be acquired, and paid for, to conduct the institution's teaching and research. If an institution consistently pays from its own funds all, or too great a portion, of the salaries of its staff devoting time to special projects, it will lack the necessary funds for acquiring additional personnel for its own program.

The colleges must endeavor to provide fair and reasonable compensation to the academic staff. However, they should not pay additional compensa-

tion to professors engaged in sponsored research. In short, remuneration must be determined on the basis of academic standards and in no way be premised upon whether or not any portion is to be charged to the sponsor. If this method of determining the salaries prevails, it seems eminently reasonable to permit institutions to



charge, as direct expense, commensurate fractions of faculty salaries, as well as any other salaries, to government, foundation or industrial funds.

#### WORTHY OF CONSIDERATION

Referring again to the Principles and participation that is unavoidable in operating under the formula, there is another point worth mentioning. No one can deny that sponsored projects within the same institution involve varying indirect expense requirements. It is possible to prepare a separate computation study for each program and to arrive at an individual overhead percentage. Nonetheless, the only feasible formula is one designed to produce an average overhead allowance for uniform application to all projects within the same university. The only variation might be in connection with an isolated and segregated operation.

The use of an average percentage for all projects has the added value of avoiding possible duplication in any of the indirect expense factors selected for computation on an individual project basis. Despite the premise that complete recovery of costs cannot be achieved, a mutually acceptable guide or formula for computation of overhead is needed by all parties concerned. Irrespective of imperfections in the present Principles, their acceptance by all agencies of the government and all institutions, at least for the time being, is urged to produce uniformity.

Acceptance of the Principles, or an equivalent formula, by foundations and industry also is highly desirable

if the educational institutions are to remain financially and scientifically strong. However, again government research is stressed because, when a university reaches a financial condition requiring that it reject certain sponsored research, it can be concluded in advance that the programs first to be abandoned will be those sponsored by the government rather than those sponsored by industry or private foundations. The reason for first curtailing government sponsored research when economies become imperative is based upon the fact that requirements imposed by law and by government regulations render government projects more costly to undertake with respect to indirect expense than non-government projects.

Colleges and military branches negotiating overhead allowances on the basis of the Principles have now had some two and a half years' experience, and in the very task of computation have developed clearer understanding of the factors involved. On the basis of this experience, the Principles are capable of improvement to the mutual advantage of all concerned. It is my opinion that the time has arrived for review of the overhead problem in general and of the computation methods in particular. The Inter-Associations Committee of Business Officers is a logical group to activate such a study in close collaboration with government representatives and any others connected with sponsorship of research in the colleges who may be prevailed upon to take part.

#### SUMMARY

In summary, then, the opinions advanced here offer the proposition that (1) the over-all research program in the nation can best be served by utilization of all personnel and facilities at our disposal, in both national laboratories and educational institutions; (2) certain types of research can best be conducted in institutional environments; (3) adequate reimbursement for direct and indirect costs of sponsored research is essential to ensure continuation of such projects in the institutions; (4) in order to provide uniformity, the sponsors and the institutions must agree upon an acceptable formula for determination of indirect expense, and (5) for the present the Principles should be accepted and immediate action initiated to review this problem in order to arrive at a firm solution.

# AUTOMATIC DIAL SYSTEM

**puts a welcome end to Wisconsin's telephone troubles**

LEE BURNS

Director, Division of Residence Halls  
University of Wisconsin

THE COUNTRY PARTY-LINE TELEPHONE—or at least a form of it—is back. Combined now with an automatic dial, it is proving very satisfactory in the residence halls at the University of Wisconsin.

Telephone systems in residence halls can be an endless source of trouble. Hall administrators are continually looking for the best system that will provide good service within a student's budget. Perhaps the most satisfactory solution would be a telephone in every room operating through a central exchange. The drawback with such a system is chiefly cost; students generally cannot afford private telephones. The corridor telephone with no signaling system is perhaps the least satisfactory: there is the annoyance of continual ringing of the telephone with each student waiting for someone else to answer and then the shouting for the person wanted.

Between the two extremes are many variations. Wisconsin has experi-

mented with most types: code ringing in corridors, manually operated bells in rooms, automatic code ringing in rooms, paging in corridors. All have their drawbacks.

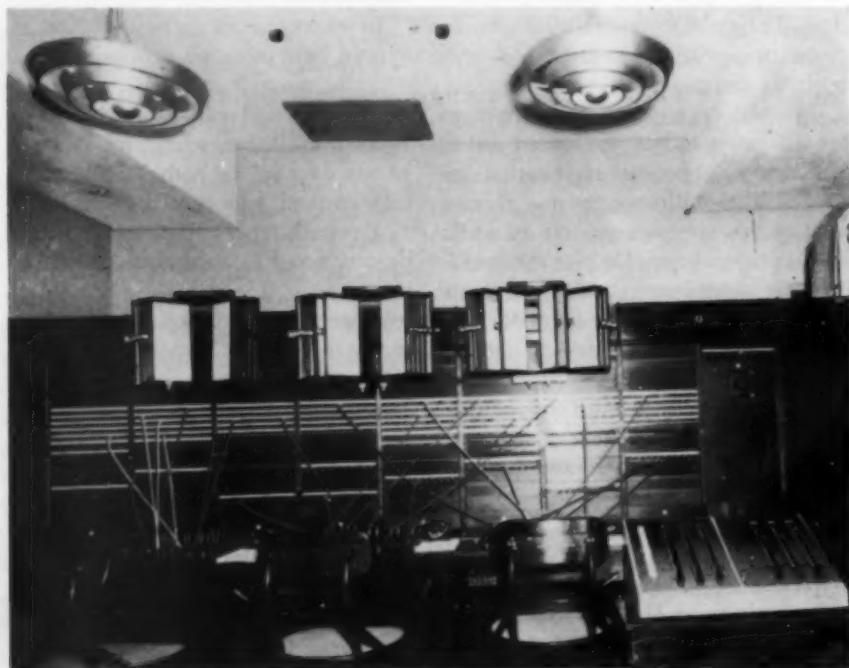
Perhaps a short history and description of the telephone systems at the University of Wisconsin will be of interest to those who have telephone headaches, too.

Until 1939 the University of Wisconsin had telephone switchboards literally all over the campus. Each residence hall had a switchboard; the student union had one; the hospital had one, and the university had one for administrative and instructional staffs. Generally speaking, service was poor; telephone operators were not professional, and there were far too few trunk lines on each board.

A thorough study of the university telephone service by a qualified consultant convinced authorities that a great deal of telephone equipment on

the campus was being used inefficiently. The main switchboard was being used only eight or 10 hours a day and was practically idle from 6 p.m. to 7 a.m. On the other hand, the hall switchboards were virtually idle throughout the day but were busy from 6:30 p.m. until midnight. Boards in residence halls had extreme peaks for an hour after dinner and generally for an hour immediately after the women's halls closed at 10:30 p.m. The main university switchboard had its peaks between classes, just before noon, and just before 5 p.m. During the peak loads none of the equipment could come even close to handling the load. Trunk lines were generally the bottleneck—and to call from one hall to another, two trunk lines were being used.

Traffic counts were carried on for some time, and a complete analysis was submitted. As a result of the recommendation of the consultant, the switchboards in all halls and in the student union were removed in



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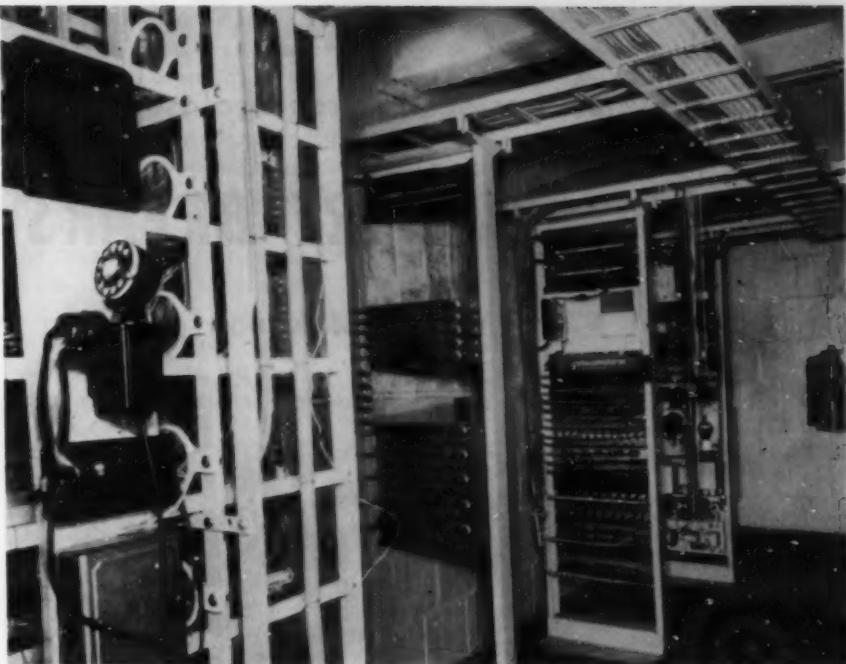
Above: Cartoon which appeared in school paper at the time. It read: "Let's call the fourth floor again."

Left: A view of a typical dial switchboard room. This particular installation is of a three-position board.



Above: Another cartoon in the school paper. This one bore the caption, "Gee, the wire must have shrunk."

Right: Equipment room housing the necessary dial equipment, batteries and electric panels for the system.



1939, and an enlarged manually operated switchboard was installed for the entire university. (The only exception to this switchboard is the hospital, which for internal reasons required a separate board.) Service was definitely improved; the pooling of the common equipment, such as trunk lines, was a great aid. Telephone calls between residence halls—which, incidentally, represented about 40 per cent of the halls' traffic—required no off-campus trunk lines at all. The paging of students in the halls, however, did present some difficulty and slowed down calls, especially at the start of each new semester.

Immediately after World War II the University of Wisconsin, like all other educational institutions, doubled in size, and again the telephone system became a headache. The switchboard was limited by the number of lines and jacks it could accommodate. The space at the university telephone office limited additional positions to the board, and further to complicate the situation the Wisconsin Telephone Company announced that Madison was being converted to a dial system.

For the central university, an automatic dial system seemed to be the answer, but a dial system with paging service in the residence halls raised many perplexing engineering problems. Independent dial systems for the central university and for each of the halls would cost more and would fail to make use of common equipment efficiently.

New studies were made. Again with advice from a telephone consultant, cooperation from the telephone company and from the State Public Service Commission, and some ingenious planning by university administrators, an automatic dial system was designed, installed and placed in operation in April 1949. Only information calls, long distance calls, and incoming calls from the Madison lines need be handled by operators. The feature of combined use of the common telephone switching equipment and trunk lines has been retained; at the same time, the residence hall calls can be handled entirely automatically and corridor paging has been eliminated.

#### COSTS INCREASE

Additional telephones had to be installed in the residence halls, with a resulting increase in costs, but through the elimination of paging centers, the cutting down of information desk service, and an equitable distribution of overhead costs on residence hall telephones, the improved service was justified even at the increased costs.

The residence halls' telephone system is actually quite simple. There is a telephone in the corridor for each four double rooms (eight students). There is a regular telephone bell in each room; none in the corridor. Each room is assigned one telephone number and has a special code ring (one long or two short). The telephone is in effect a party-line telephone with code ringing for each room and one

telephone for four rooms. There can be no "listening in" for there is only one instrument. When the telephone is in use, an incoming call will receive a busy signal. When residents of a room are not in, no one answers their ring. There is no telephone ringing in the corridor. Each room has a telephone number, *i.e.* each two students have a telephone number, just like any university official. Students can dial another room, another hall, or an outside line without bothering an operator.

Long distance calls from residence hall telephones are automatically referred back to the university operator; long distance calls can be placed only through pay telephones located in the corridors. Wrong numbers are the fault of the caller, not of the operator. The system works well.

The length of conversations has always been a problem and still is, but an automatic cut-off feature could not be installed without prohibitive expense. To discourage long telephone conversations—and from 20 minutes to half an hour for love birds is not uncommon—short telephone cords were installed. No longer can students lounge on the floor with their feet up on the wall, or bring the telephone into the nearest room for a long, intimate talk. With the short cord a student must do his talking standing up. Naturally, the short cord idea was not hailed by many students—there were cartoons in the school papers showing students dialing with their noses—but it is now accepted.

*Every precaution has been taken against it, but*

## IF FIRE BREAKS OUT

*this school is now prepared to handle it systematically*



BEFORE

AT EVERY TELEPHONE STATION ON every floor of the Cincinnati Conservatory of Music you will find a nickel contained in a cellophane bag, beside a sign "For Fire Only." These handy coins are symbolic of the fire preparedness recently instituted by the school with the cooperation of the Cincinnati Fire Department. They are there as a safety measure. No alarm will ever be delayed because of the lack of a nickel for a phone call to the fire tower.

Even before the disastrous fires at several colleges last year, the conservatory began the formation of a fire brigade among the music students, faculty and staff members. Organized in accordance with fire department recommendations, the brigade receives 10 hours of instruction from fire department officials at the beginning of each school year and again at the opening of the summer session. The firemen began their program

An arbor, a cement wall, and parked cars hampered firemen in their work (above). Now the arbor has been removed and the 85 foot tower can swing about freely. A student (right) descends by rope sling.



AFTER

of cooperation with the conservatory by first inspecting the buildings from basement to roof. With a critical eye they looked over the wiring, exit lights, rubbish disposal, fire escapes, fire extinguishers, and other details. With few exceptions the school came through with colors flying. Some recommendations for greater safety were made by the fire department, however.

Chief among the improvements made at the suggestion of the firemen were several exterior alterations to allow fire equipment better and quicker access to the buildings. The first step was to make the school's narrow, curving driveway a "no parking" zone. Previously, with cars parked on one side of the drive only, there was barely room for an average sized automobile to get by. Imagine the difficulty thus imposed upon the

most effective in case of an emergency. After the changes, the same results were accomplished in as little as 2½ minutes.

In the instruction phase of the program, firemen under Marshal Joseph Devine and Assistant Fire Chief Leo Kuhn conduct five two-hour classes at the beginning of the fall and summer terms. Members of the fire brigade are shown movies and are given practical demonstrations of the use of various types of extinguishers. They are taught which to use in the event of

oil, grease, gasoline or electrical fires. Several fire drills are held every semester at the conservatory. In each case the fire tower only is notified in advance. The fire department sends personnel to cover each floor in the building and all alarm boxes in the neighborhood. To make the drills more realistic, equipment is sent from the fire house whenever possible. Students are given an opportunity to descend the 85 foot ladder or a ropesling emergency escape. Some girls made two-story jumps into nets.

drivers of a long ladder wagon! Removal of an arbor over one section of the driveway leading to an entrance was the next step in improving the accessibility of fire vehicles. To reach many of the windows with the 85 foot ladder, the wagon has to pull in as close as possible to this entrance. The arbor greatly hampered this maneuver. Another alteration was the removal of a concrete wall at the edge of this section of driveway and the extension of the pavement for a considerable distance.

The net result of these improvements was to cut by 20 minutes the amount of time required by the firemen to raise their ladders to the roof! On their first visit to the conservatory, it took more than 22 minutes for them to place their ladders in a position where they would prove



BEFORE

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Until the cement wall was removed and the driveway apron extended, the fire department's ladder truck could not reach all the windows.

In a recent drill, the fire tower reported that it received four calls from the residence hall in 1½ minutes. At the end of 2½ minutes, all buildings were evacuated of the 200 students residing in them. Five minutes after the drill alarm was sounded, firemen reported "all clear," and during that length of time a thorough inspection of the buildings was made to be sure of complete evacuation.

The organization of the fire brigade at the conservatory, while designed primarily for a particular school, might serve as a model that could readily be adapted by other colleges. It consists of five companies and is headed by a chief. Serving under him are seven assistant chiefs, five senior captains, one assistant captain, and 26 wardens, including evacuation men, runners and telephone operators.

Headquarters staff includes myself as chief, five assistant day chiefs, and



tor calls fire tower on telephone; (2) runner goes to fire call box at corner and sounds alarm; (3) hoseman operates extinguisher if necessary; (4) evacuation warden guides students to proper exit and executes complete evacuation. Whether it is a drill or a real fire, all of the wardens execute their duties systematically.

The fire safety program at the conservatory has been greeted with enthusiasm by students, faculty and staff members, as well as the Cincinnati Fire Department. While the "no parking" ban on the driveway eliminated 25 parking spaces, the estab-

Left: Firemen teach student to use hand extinguisher in putting out a gasoline fire. Below, left: Girl being helped down ladder. Below: Abolishment of parking in conservatory driveway means that fire department vehicles can maneuver freely about campus in case of alarm.



two assistant night chiefs. The daytime personnel is made up of faculty members, housemothers, and other staff members. The night chiefs include the night dean of women and the night watchman.

Company No. 1 consists of staff personnel on duty during the day. Company No. 2 is composed of PBX telephone operators. Company No. 3 is housed in the girls' residence hall, a five-story brick building. It is headed by a student captain and an as-

sistant captain. On each floor there are four wardens, a runner, evacuation warden, telephone operator, and hoseman. Company No. 4 covers Auburn Hall, the men's residence hall, which is a three-story brick residence. Company No. 5 is found in the Piano Tech Building, a modern one-story frame structure. These last two companies are composed of captain and several wardens.

The duties of the various wardens are as follows: (1) telephone opera-

lism of several new parking areas outside the danger area more than compensated for this loss. Special spaces are marked off for faculty members, and another area is reserved for students. Parking violations are called to the driver's attention by a courtesy "citation," which asks in a friendly way for the cooperation of the offender "in the interest of protecting life and property." The system works well and all hands are cooperating at the present time.

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Telephone manners is the subject of this TV program on Station WPTZ, which is now being operated by the public schools of Philadelphia.

IS TELEVISION AN ASSET OR A LIABILITY? What will it mean to higher education? Will it develop into a really useful new educational tool for colleges and universities? Will costs become reasonable enough to permit more than the wealthiest of institutions to install their own stations or to make adequate use of commercial stations?

These are a few questions that university and college administrators are asking. Public relations and information directors, ever alert to new means of reaching the public they serve, are gingerly dipping their toes into the video lake to test the water. A number are in at least waist-deep, feeling their way in this strange and mysterious ethereal medium. A few are completely in the swim, convinced already that it is the greatest new informational instrument yet to emerge from the scientific wonderland.

Results of a recent survey, to be described, reveal a rapidly growing eagerness to use television in many schools. While director of media activities for the American College Public Relations Association, with membership representing some 900 institutions of higher education, I polled all member colleges with a television questionnaire. The purpose was to determine how many are employing television, how successful they have been, how they are licking some of the troublesome problems, and how they are financing their efforts.

Thirty-five out of the membership reported regular television usage ranging from once or twice a year to once a week. Many others indicated plans to venture into telecasting as soon as stations become established within convenient reach. With one exception, all were using commercial outlets, generally one or more individual stations, but in several cases network facilities.

Only one college reporting has actually installed standard telecasting



### **Colleges are dipping their toes into the**

## **TV lake to test the water**

**W. LOWELL TREASTER**  
Director of Public Relations  
Michigan State College

its place in the television field with owned and operated stations.

A good example of the tremendous financial layout necessary is indicated by a report prepared by Prof. James D. Davis, a member of the Michigan State College department of radio education and the college television committee. It will take more than \$82,000 to buy the equipment necessary to set up and operate a production center, which would include studio audio equipment, lights, power supplies, studio camera control units, and two camera chains. It will take an additional \$30,000 to purchase equipment to relay programs to local commercial stations and to make film recordings

for release over other than local commercial stations. To add mobile pick-up equipment, with relay unit, the bill will be another \$30,000. The final step, purchasing of necessary equipment to put a 500 watt TV station on the air, would run somewhere in the neighborhood of \$40,000. That's a grand total of \$182,000, something more than pocket change for even the large institutions.

Even that total doesn't include several thousand dollars for replacement supplies needed to start and a sizable staff of technicians and experts essential to keep the station on the air effectively.

#### TALENT GALORE ON CAMPUS

In one respect the educational station will have an advantage over the commercial. An unlimited supply of talent for its programs already exists on the campus, thereby promising to pare expensive talent costs.

With commercial stations freely offering time to educational institutions, most colleges and universities probably will content themselves with these outlets for some time to come. Among colleges and universities reporting in the A.C.P.R.A. survey, those making most extensive use of television included Johns Hopkins University, American University, University of Buffalo, Cornell University, New York State College of Forestry at Syracuse University, University of California, Pennsylvania State College, University of Cincinnati, and University of Illinois, Chicago colleges.

Johns Hopkins University is using television weekly from WMAR-TV over CBS eastern network for the "Johns Hopkins Science Review"; it also is using two other stations for monthly spot programs. Johns Hopkins pioneered in television research. On Dec. 17, 1948, it became the first university to telecast a sustained weekly educational program on a TV network. Format for the science program combines entertainment and education. For each telecast one or two faculty members present a popular science demonstration, designed for the layman, illustrating basic scientific research carried on in Hopkins laboratories.

Financial arrangements involve a three-way split of costs, with the university providing all program material and faculty needed for the presentation; the station providing the

studio and crew, and the network paying the cost of the coaxial cable and lines.

The American University, Washington, D.C., is using spot announcements over WMAL-TV, Washington, showing scenes of the university campus. Participation in other programs totals at least an hour weekly. All programs of the American University are directed at the community and are essentially based upon current events. "District Viewpoint" is an example of a program series devoted to topics of particular interest to the residents of Washington, D.C.

The University of Buffalo has been using television over a local station since May 1948, one of only a few with a program that is broadcast simultaneously by TV, AM and FM. The University of Buffalo Round Table is aired weekly as an extemporeaneous discussion of current problems. The round table is carried on by three principals and a moderator, different each week. Principals are selected from faculty and community on their basis of knowledge of the topic and ability to contribute to the program. The half-hour program is devoted to local, national and international subjects of interest from October through June; to medical subjects during the summer. The station pays the participant and the college staff member who is the producer. The university purchases visual aid materials when needed.

Cornell University uses television about once every two months, working with stations in Buffalo, Rochester and Syracuse. Motion pictures showing campus scenes and student talent are used extensively.

The New York State College of Forestry at Syracuse University presented its first television program May 22, 1946, over WRGB, Schenectady. Recently aired was a 25 week series, one program a week, over WHEN, the local station. A wide range of subject matter was used, including Christmas trees, poison ivy, tales of wild animals, flood control, and maple sugar. Visual aids are relied upon for these programs, including movies, slides, still pictures, blackboard and models.

The University of California is televising in Los Angeles twice monthly, airing all types of programs, made clear by action as well as words.

Pennsylvania State College, because of its remote position from tele-

vision stations, has employed a plan that might well be the answer for many other colleges in similar geographical situations. Television programs are photographed on film, with one station providing the film free. The college film center does the photography, and the film is shipped by bus to the station for processing. Within a day after completion of shooting, the film is on the air. Sports features, scientific research, and how-to-do-it features from Ag Hall are used most frequently. One of the most successful programs was a half-hour show by a faculty member who demonstrated how to make ice cream at home. He not only made it on TV but also ate it before signing off. Each film offering costs about \$30, not including the time which is spent by the college staff.

Evening College of the University of Cincinnati is using television regularly. An example of its programs is a series from the applied arts department entitled "A Hobby for You." One telecast was built around an interview of three students and an instructor by a station personality while they demonstrated principles and methods involved in ceramics and sculpture.

#### ILLINOIS USING TELEVISION

Television is used about four times a month by the Chicago colleges of the University of Illinois. Subjects relate to medicine and dentistry and seem well adapted to television. Stations absorb the entire cost of production with the exception of visual materials and program participants. Use of television for reproduction of x-ray films was developed at the Chicago professional colleges.

Athletic events are being broadcast from many colleges and universities, but not without a jaundiced eye of suspicion from athletic directors who fear or suspect a cut in gate receipts. The opinions as to the effects of television on sports crowds are divided, however. Some schools are prohibiting any televising of sporting events, assuming a watchful waiting attitude. Others report both good and bad results.

On the beneficial side of the ledger is this report from the University of Houston: "Almost all major sports events televised. It has resulted in increased interest in our sports program and our campus, offsetting any short-term ticket losses."

The student's class cards, stamped "Fees Paid," admit him to classes.

REGISTRATION IS A PROBLEM ON most college campuses. Particularly is that true in these days of heavy enrollments and diversified curriculums. The St. Cloud State Teachers College is no exception. The following account of the registration procedure employed must not be taken to imply that this college has solved all the problems of registration. A plan has been devised and has been successfully carried out through several quarters and it is reported here for what it may be worth.

St. Cloud offers the bachelor of science degree, which prepares students for teaching on both the elementary and secondary levels, and the bachelor of arts degree. It also offers the associate in education degree, a two-year curriculum for elementary school teachers, and the associate in arts degree in general education and in business. Likewise there are a number of preprofessional courses being offered preparing students for advanced work in technical and professional colleges.

Each student upon entering the college is assigned to a counselor or adviser. Those on the associate in education degree curriculum have their own advisers. The preprofessional students also are assigned to specially designated advisers. All other students are assigned to junior college counselors. Transfer students may be assigned to junior college counselors or senior college advisers, depending upon the amount of credit transferred and upon the student's qualifications for admission to a major curriculum. Degree students, after having completed 68 quarter hours of work, make application for admission to the senior college. When such application is approved, the student then becomes a responsibility of a senior college adviser in the area of his specialization.



## REGISTRATION *goes smoothly*

*according to St. Cloud's new plan*

**HERBERT A. CLUGSTON**

Dean of Academic Administration  
State Teachers College, St. Cloud, Minn.

This preliminary statement is made to provide the background for a clear understanding of the registration procedure that follows.

Six weeks before the beginning of the quarter, students taking the bachelor of science degree curriculum and planning to do student teaching pre-register with their advisers. These programs then are turned over to the staff members in charge of making student teaching assignments. In the meantime, minimum and maximum class sizes are established for each

course to be offered; these represent the desirable limit of enrollment for that class and the limit beyond which facilities will not permit enrollment.

Class cards then are prepared for the maximum number with a stop card placed after the minimum number. The purpose of the stop card following the minimum class size desired is to equalize distribution among the several sections of a given subject. When all sections are fairly well equalized, the stop card is moved back and the sections are reopened. These class

cards are arranged alphabetically by instructors in a series of pigeonholes that makes them easily accessible at the time of registration. When the student teaching assignments have been made and the programs returned, the class cards for all students doing teaching are withdrawn and are clipped to the tentative registration slip. These are then handed to the adviser to hold in readiness for the day of registration.

#### PREPLAN THEIR PROGRAM

It is common practice for students to confer with their counselors or advisers during the weeks preceding registration to preplan their programs. The junior college counselors regularly schedule appointments with their counselees, since their counseling function with students is much broader than program making. This preplanning facilitates greatly the actual act of registration and minimizes errors caused by last minute "planning." It also guarantees to a greater degree that the student's progress through his educational experiences will be more orderly.

Registration is conducted in the gymnasium. Admission to the gymnasium building during registration is permitted only by ticket. Fortunately, there is a tunnel leading into the gymnasium so that students may form in line without discomfort even in bad weather. Guides are stationed at the door to regulate the flow of students. They proceed to the main gymnasium except in the case of the two-year elementary students, who use one of the smaller auxiliary gymnasiums.

The arrangement of the gymnasium is conventional with tables and chairs placed around the room under large posters indicating the department represented. In one corner is the class card booth. Down through the center of the gymnasium are tablet arm chairs to make it easier for students to fill in cards and class cards.

Tickets are provided for the following groups: student teachers; business administration seniors; associate in arts in business freshmen and sophomores; seniors, juniors and sophomores other than two-year elementary and those assigned to junior college counselors; two-year elementary sophomores; two-year elementary freshmen; new students, both freshmen and transfer, and freshmen and sophomores assigned to junior college counselors. Each ticket indicates the

date and the hour at which the student will be admitted for registration. Some of these tickets are issued by advisers and counselors; others are issued from a ticket booth in the main building prior to the date of registration.

Students are admitted in the following order: from 8 to 9 a.m., student teachers and business administration seniors; at 9 o'clock, students new to the college by a ticket obtained from the registrar indicating whether freshman or transfer and, if the latter, the approximate standing (this makes it possible for the registrar to check all entering students to be sure that their applications for admission are in order); at 9 o'clock, all seniors and two-year elementary sophomores who are not doing student teaching are admitted; at 10 a.m., all juniors; at 1:15 p.m., all sophomores who possess a ticket for that afternoon (they may come at any time until 3:30). Preprofessional freshmen also enter by ticket at the same afternoon hours. Freshmen and sophomores registering with junior college counselors are admitted by tickets assigned and issued by the counselors and are spaced at intervals of one each 15 minutes.

Two-year elementary freshmen have been divided earlier into nine groups of approximately equal size. There is, in addition, a group whose program is irregular; that is, those who did not start at a time when they could be assigned to a regular group. The students in the irregular group register at 1:15 p.m. Students in Groups 1, 2 and 3 register at 2:30. On the morning of the second day the program of the previous afternoon is continued, those students who have tickets for 8 o'clock on that morning being admitted. Groups 4, 5 and 6 of the two-year elementary freshmen are admitted at 8 a.m. Groups 7, 8 and 9 are admitted at 10 a.m.

#### REGISTRATION PROCEDURE

The registration procedure that the students are to observe is as follows:

1. Register with your adviser. Fill tentative registration blank only. Blank must bear your adviser's signature; if you have two majors, that of both advisers. Most freshmen will not have designated majors.

2. Present your tentative registration slip to a clerk in the class card booth. The clerk will obtain the cards for you. If a section is filled, return immediately to your adviser to have your schedule adjusted. You will re-

turn to the booth, present your corrected schedule, and receive your cards. You need not wait in line upon return to the booth. You have priority.

3. You will then fill in your program card and your class cards. Be sure to indicate the curriculum; B.S. (teaching); B.A. (liberal); A.E. (two-year teaching); A.A. (two-year general), preprofessional; also, the major (or majors) and minors.

4. Have your adviser sign your program card. You need not wait in line for him to do this. You have priority.

5. Proceed through the south door, main gymnasium, or west door, south gymnasium, where checkers will look over your cards for errors.

6. Proceed down south stairs to the fee payment booths in the south corridor, where representatives of the business office will receive your tuition and fees and stamp your program card and class cards.

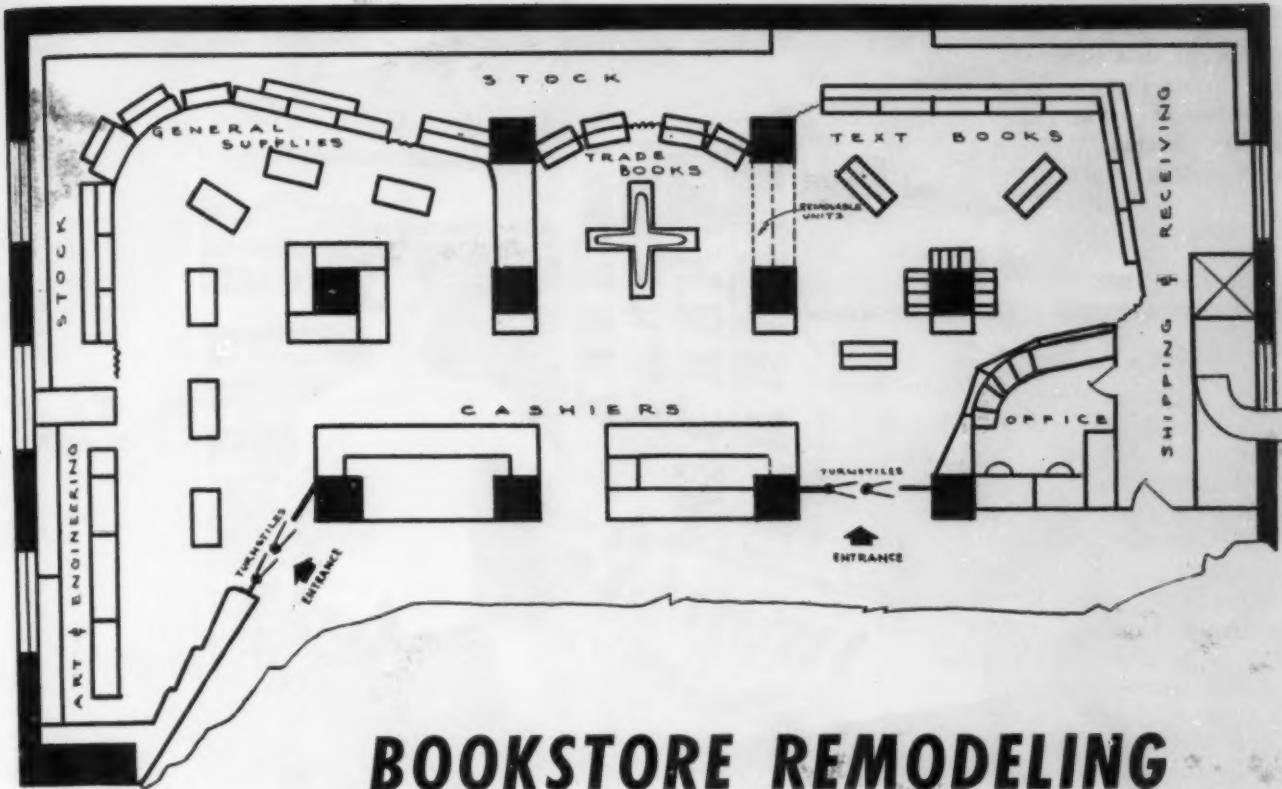
7. Leave your program card at the south exit of Eastman Hall.

8. Take your class cards with you — *Do not lose them!* You will not be admitted to class without a card bearing the official stamp "Approved" and the "Fees Paid" stamp. Faculty members are asked to adhere to this rule *without exception*.

#### CUTS REGISTRATION TIME

By using the registration procedure outlined, we have found it possible to register our 1800 to 1900 students in a day and a half with ease and with a minimum of standing in line on the part of the students. Faculty members are stationed, with assignments made before registration, to direct the flow of traffic and to man the various checking tables. Before a student leaves the registration room the checkers go over the program card and class cards to be sure that all items required are filled in correctly. The student then proceeds to make payment of his fees, and before he leaves the building his cards are checked again. His program card is held. His class cards, which are stamped "Fees Paid," are his admission to class.

By following this procedure we have eliminated most of the grumbling that usually accompanies registration, and we have given the administration a greater degree of assurance that, both academically and financially, the registration will have been completed and in order when the student takes his leave of the registration building.



## BOOKSTORE REMODELING

*permits business to go on as usual at Carnegie Tech*

SELF-SERVICE, EFFICIENT MERCHANDISE handling and storing, and a new trade book section perfectly designed for browsing are features of the newly remodeled bookstore at Carnegie Institute of Technology.

The remodeling, which changed the 28 year old store from a "through-a-window supply station" to a walk-in, self-service shop, was accomplished with little disruption to the general sales. Work was done by sections, with the merchandising operations being moved from one section to the next as portions of the store were completed.

Entrance to the new C.I.T. store is through turnstiles at either end of the selling floor. The floor is divided into three parts, with the stationery and supplies in one section, the trade book shelves in the center, and a textbook area on the other flank. Exit from the store is at front-center; near the door is the cash register counter where payments are made.

The store is not completely self-service. One clerk handles small art supplies and another handles small,

**ANTHONY L. ANTIN**

Editor, News Service  
Carnegie Institute of Technology

valuable items, such as slide rules. However, these clerks do not handle money. The one clerk handling art supplies totals the purchases on an adding machine and gives the customer the tape. The customer relinquishes the tape at the central cash register and pays for his purchases there. The small valuable items are obtained from the clerk at the show cases and also are paid for at the central cash register. This procedure has speeded up customer handling and eliminated the necessity for marking small items or for reference to a price list by the clerk at the cash register.

The new store's display shelves, which surround the selling floor on three sides, are placed away from the permanent walls of the room to provide storage area around the room on three sides. Merchandise and books are stored in the section immediately behind the area in which they are displayed. This eliminates waste time

and effort in replenishing supplies as they are sold.

To solve the receiving problem faced by most basement bookstores—the new store is in the basement of the C.I.T. administration building—Carnegie has built a receiving platform at window level (which is, outside, ground level). A ramp has been built from this platform to the basement floor, and a driveway has been built from the street to the window. This receiving section is used by the bookstore and the adjoining post office.

Packages received at the platform slide to the floor level and then, in most cases, are opened and the material is placed immediately in the storage area adjoining the floor displays. This avoids multi-handling of stock.

One reason for the trade book section is that the faculty believed such a section would aid the development of the program of education which C.I.T. has been creating for the last 14 years, the Carnegie Plan of Professional Education. This plan, which has been receiving national attention



Above: A view of the art supplies section of the newly remodeled bookstore at Carnegie Institute of Technology.

Below: Stationery and supplies section. Merchandise is stored immediately behind area in which it is displayed.



as an effective way to help students develop the ability to solve both technical problems and those in the human-social fields, implies independent student reading in areas outside of his major course of study.

The Carnegie faculty reasoned that one way to encourage students to read and learn on their own about subjects they may not be studying would be to give students opportunity to browse among a wide variety of good books. Therefore, C.I.T. decided to build the walk-in trade book section to stimu-

late student browsing, believing that the browsing would arouse interest and the books would sell themselves to the students.

The short time that the remodeled store has been in operation seems to have supported this belief. One engineering student said: "Since the remodeling, I have bought four or five books that I might not otherwise have purchased. They include two on political science and one on modern history, fields which interest me but which I have not formally studied."

and a recreation room 14 by 30 feet.

All bearing and nonbearing walls are constructed of these slabs with the exception of those enclosing the stair halls and toilets, which are glazed tile units. Since the finished surfaces of the slabs are equivalent to the smoothness of a plaster wall, the precast panels that make up the interior walls and partitions need only painting to provide an interior finish as attractive as a plaster wall but more durable.

It has been demonstrated by test that the 4 inch solid precast dividing partition between the rooms is more nearly soundproof than a conventional plastered terra cotta block partition. The necessity for furring, grounds, lath and plaster is eliminated entirely, thus reducing the work of high-cost trades to a minimum. No time is lost in waiting for plaster to dry as the slabs are ready to paint as soon as erected.

The exterior walls are the cavity type of construction consisting of 8 inch slabs, a 2 inch air space that provides effective insulation and prevents condensation, and a 4 inch brick facing that maintains harmony of exterior material with the other buildings on the University of Connecticut campus. The brick facing is securely anchored to the 8 inch precast slab by galvanized iron anchors at frequent intervals. Concrete floors are of flat slab design poured in place and finished with asphalt tile. Acoustic tile is provided on all corridor ceilings to cut down the sounds within the travel area. Exterior windows are double hung steel sash throughout with limestone sills, and all doors have a steel buck and trim securely anchored in place.

Duplex electrical outlets are supplied on both sides of each room in order that furniture may be placed where desired by the individual student. Each room is provided with a conventional double-deck bed, two small desks, two chairs, and two built-in wardrobes.

Steam for the buildings is from the central heating plant located some distance away, supplying a two-pipe heating system with radiators of the convector type, recessed under the windows of each room. No individual radiator valves are provided as the amount of steam is controlled by motorized valves actuated by a thermostat, on each side of each unit. Hot water is obtained for the housing project from a hot water heater located in the basement of each unit.



**Connecticut builds in**

## **PRECAST SLAB**

**WILLIAM B. MYLCHREEST**

McKim, Mead & White, Architects  
New York City

WHEN WE WERE REQUESTED BY THE state of Connecticut to design permanent housing for the University of Connecticut's G.I. students, we adopted the precast slab method of construction. The serious shortage of masons at that time would have precluded completion of the much needed buildings in the specified time had conventional construction methods been employed. The slabs for the project were cast and finished off the premises and trucked to the site in specially designed trucks.

Cost of the permanent fireproof residence hall accommodations for 1268

students was approximately \$1,730,000, or \$1360 per student. The cost included grading, roads and walks, but did not include furniture or professional fees.

### **UNITS ARE CONNECTED**

The housing is provided in eight connected units, mostly four stories high with a fifth story on the westerly side made possible by the natural slope of the ground. Economy of space was obtained by providing double occupancy rooms. Each unit has, in addition to student living space, an administrative office, house mother's suite,



## Through its new **ENGINEERING-TECHNOLOGY**

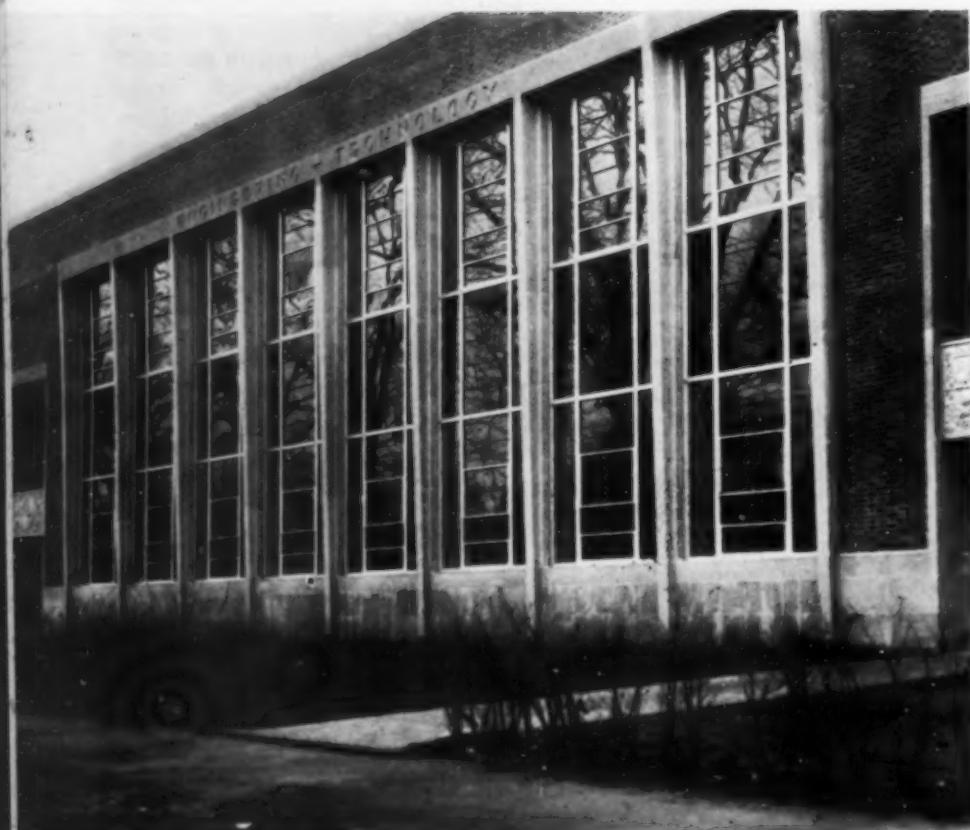
**building, Bridgeport is able to train its engineers at home**

**WENDELL KELLOGG**

Director of Public Relations  
University of Bridgeport

PARKING, A MAJOR DIFFICULTY IN planning buildings in 1950, is provided for in the new engineering-technology building at the University of Bridgeport, Bridgeport, Conn., completed in January. A surfaced and row-marked area in the rear provides space for 102 cars. Even shade is available from three large trees left standing in the area when the parking lot was built.

Many additional architectural and utilitarian features are included in the \$630,000 structure, the tenth building on the university's new Seaside Park campus to be used for educational purposes and the first to be planned from the beginning for permanent usage.



TOP OF PAGE: Central door panels are of cast aluminum showing the university seal flanked by eight designs representing branches of engineering. LEFT: Part of the building's façade.

Fones Hall, the first permanent building completed a year and a half ago, was a former naval barracks removed to Bridgeport as a federal project and utilized, after another \$100,000 had been put into the structure, as a laboratory-classroom building.

The development of the new campus is a story of adaptation. Since the former P. T. Barnum mansion became a residence hall in 1945, 15 other buildings have been converted to university use.

The engineering-technology building is a key to the community function of a university that correlates its program to the diversified needs of a manufacturing area. Bridgeport long has been interested in training its own engineers at home, but until the advent of the university in 1947, after 20 years as a leading junior college, had not had the opportunity. Thus, from the beginning, the proposed college of engineering was given initiative and counsel by many Bridgeport industrialists. The planning of the building, along with the planning of the academic program, was in the hands of a joint university-community committee. The result was a structure geared to a program developed to fit specific predetermined local functions.

The new structure will provide laboratory facilities for industrial and mechanical engineering, laboratory facilities for physics and chemistry, and general classroom facilities for the university. It will provide classroom space for 600 students at any one time, nearly one-third of the day student enrollment and almost one-fifth of the total enrollment of 3300. It will serve, besides the division of engineering, the college of arts and science and the college of business administration.

The general contract was for \$435,000, supplemented by the architectural and land costs, plus equipment running to \$150,000. The building is of contemporary design with large window areas. Completely fireproof, it is of reinforced concrete construction. The exterior is of red brick and white granite.

Among the unique features of the building is the exterior exposed metal work. There is no outside woodwork of any kind. All of the entrances, doors, transoms, thresholds, frames, and window casings are of extruded and cast aluminum. Central panels are of cast aluminum, each with a reproduction of the university seal,

which is flanked by eight additional panels with designs representing electricity, chemistry, mathematics, drafting, mechanical engineering, science, aeronautics and synthetics. All windows have 12 gauge aluminum subframes, extruded sash, and forged aluminum hardware. Spandrels between the first and second story doors and windows are of black Carrara glass,  $1\frac{1}{2}$  inch thick and polished.

A feature of the building service is the 200 clothes hooks, with self-checking combination coat and hat locks, that are spread through the halls.

Both the main lecture hall, with a seating capacity of 190 on progres-

the building is limited because of the space available in easily accessible adjoining buildings.

The stairs, of steel and tile construction, have built-in safety nosings. Handrails are of stainless metal tubing. Radiators on the landings are inset, so that they are flush with the walls.

A large folding door between the drafting rooms enables these two large rooms to be opened into one when desired. A chemistry laboratory arrangement is a common balance room, a stockroom, and an office between the two chemistry laboratories. The two physics laboratories adjoin, each



Rear view of University of Bridgeport's engineering-technology building.

sively raised levels, and one physics laboratory are completely windowless, with special ventilating units.

Glazed tile wainscoting, 7 feet high, is provided throughout the corridors, in the mechanical engineering laboratory, the lecture room, and the toilet rooms.

The mechanical engineering laboratory has a large exterior manual push-up rolling and counter balance door of 22 gauge steel to facilitate passage of large equipment units. It also is provided with a canal sunk in the floor and extending along three sides of the room for tests to be conducted in hydraulics.

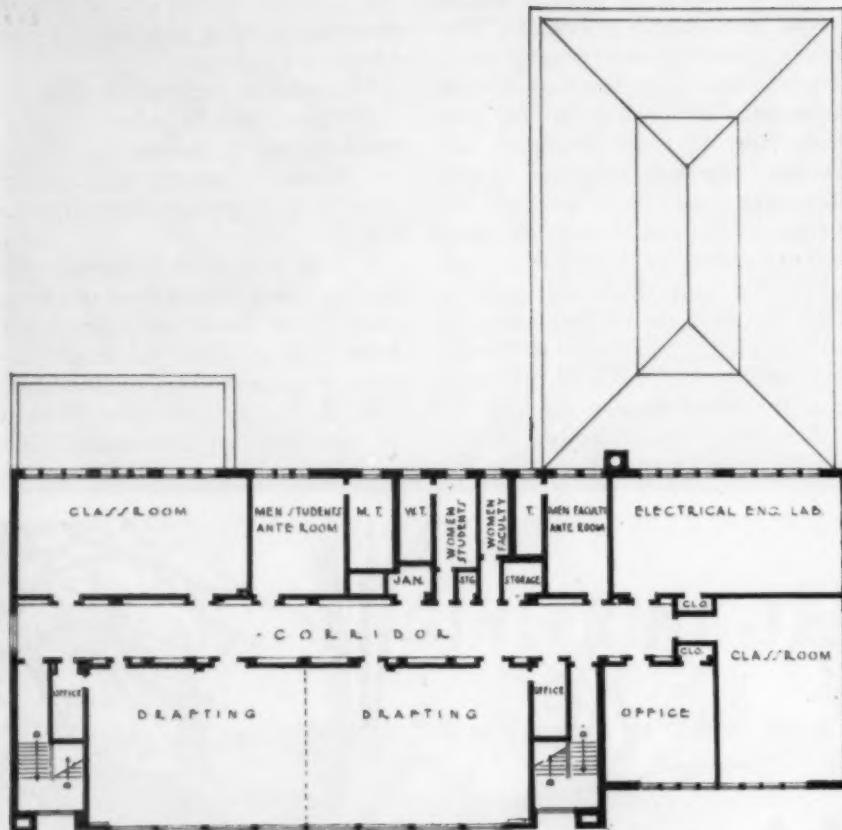
Men and women student lounges and a faculty men's lounge, with adjoining lavatory facilities, are provided. Office and classroom space in

opening into a common storage room containing individual storage bins.

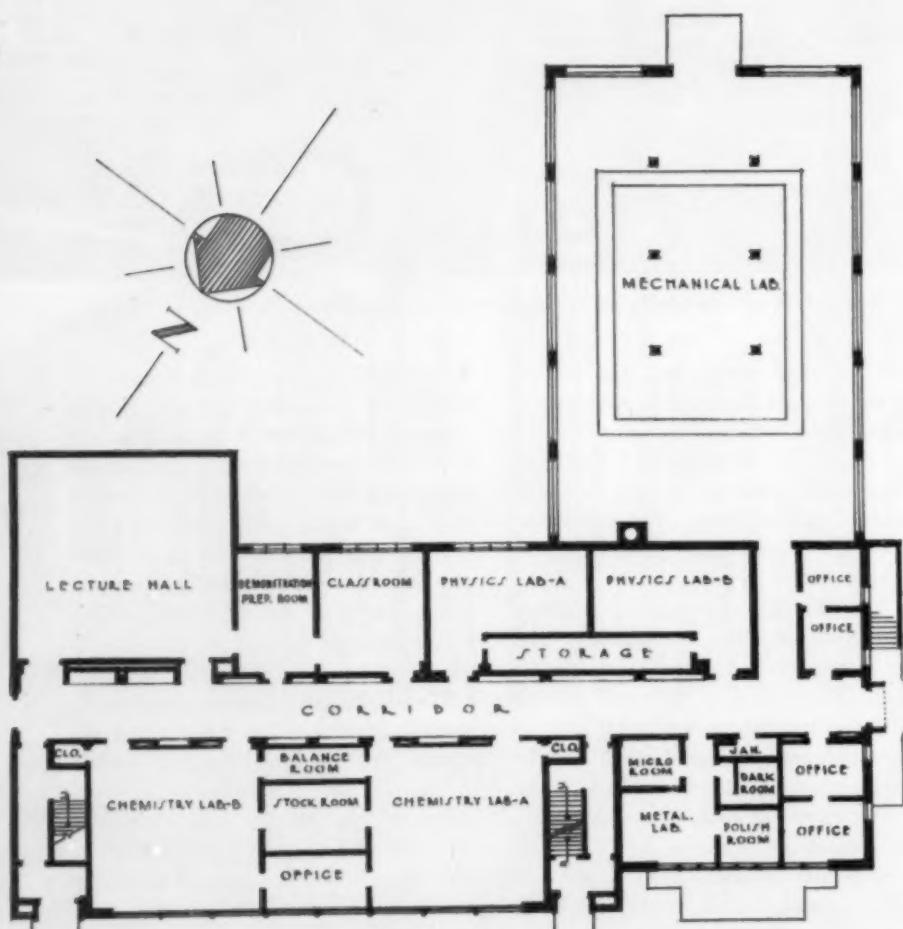
Some miscellaneous points include cork bulletin boards and glass chalkboards bordered with extruded aluminum trim, marble toilet partitions and shelves, and toilet mirrors in the various lavatories, and a really adequate storage area in the basement, which is reached also by a 1500 lb., 4 by  $4\frac{1}{2}$  foot hand-operated sidewalk elevator.

The darkroom adjoining the metallurgical laboratory has a built-in darkroom light operated by a wall switch in the normal wall switch position. However, the white light switch is 18 inches above the darkroom red light switch so that anyone entering the room will not inadvertently turn on the white light.

A clock and program system oper-



Second floor plan, engineering-technology building.



First floor plan, engineering-technology building.

ates from an electric time central control with a 24 hour program instrument. A common code ringing fire alarm system operating from a master control panel for complete electric supervision has both break-glass and thermal-response stations.

Finish flooring is of asphalt tile. Generally, the building is plastered throughout and the walls are painted in tints of green, gray, buff and beige with complementing dado. All ceilings, except in the mechanical engineering laboratory, are acoustically treated with incombustible material. Units are 12 by 24 by  $1\frac{3}{16}$  inch and have a sound absorption coefficient of 0.86 at 512 cycles. The ceilings can be repeatedly brush painted with oil paint without any loss of sound absorption.

#### HEATING AND VENTILATION

Heating is by steam. The two boilers, with 478 square feet of heating surface, are fired by two horizontal rotary oil burners capable of burning 20 gallons of No. 5 fuel oil per hour. The burners are equipped with magnetic starters, gas and electric ignition, and all modern safety controls.

A complete system of ventilating ducts runs throughout the building to exhaust and supply air to each room. The building has six thermostatic heating control zones, which are adjusted to a week clock, a day and night control, and a week-end skip. The lecture hall is equipped with unit ventilators; there are unit heaters in the mechanical engineering laboratory. Cast-iron radiators are hung on walls throughout the building and are of the midget tube type with  $1\frac{1}{4}$  inch center-to-center sections.

The ventilators are set in 11 different systems which include acidproof exhausts from special laboratories. Ventilation in the various rooms is provided by exhausting air through the rooms from the corridors with the aid of louvers formed by sloped wood slats in the lower half of the doors. The upper half in most of the hall doors is glazed with wire glass.

Lighting is largely incandescent, with indirect suspension units, direct suspension units with prismatic glass reflectors, and semirecessed units.

The building has been designed to provide for expansion by means of a two-story wing to be constructed at the east end of the building corresponding to the existing mechanical engineering wing.



*Building a new college on the basis of*

## **PAY AS YOU GO**

**HERBERT J. POWELL**

Marsh, Smith & Powell  
Architects and Engineers  
Los Angeles

rally influenced the physical layout of El Camino College, as well as its curriculum.

### **ADOPT MASTER PLAN**

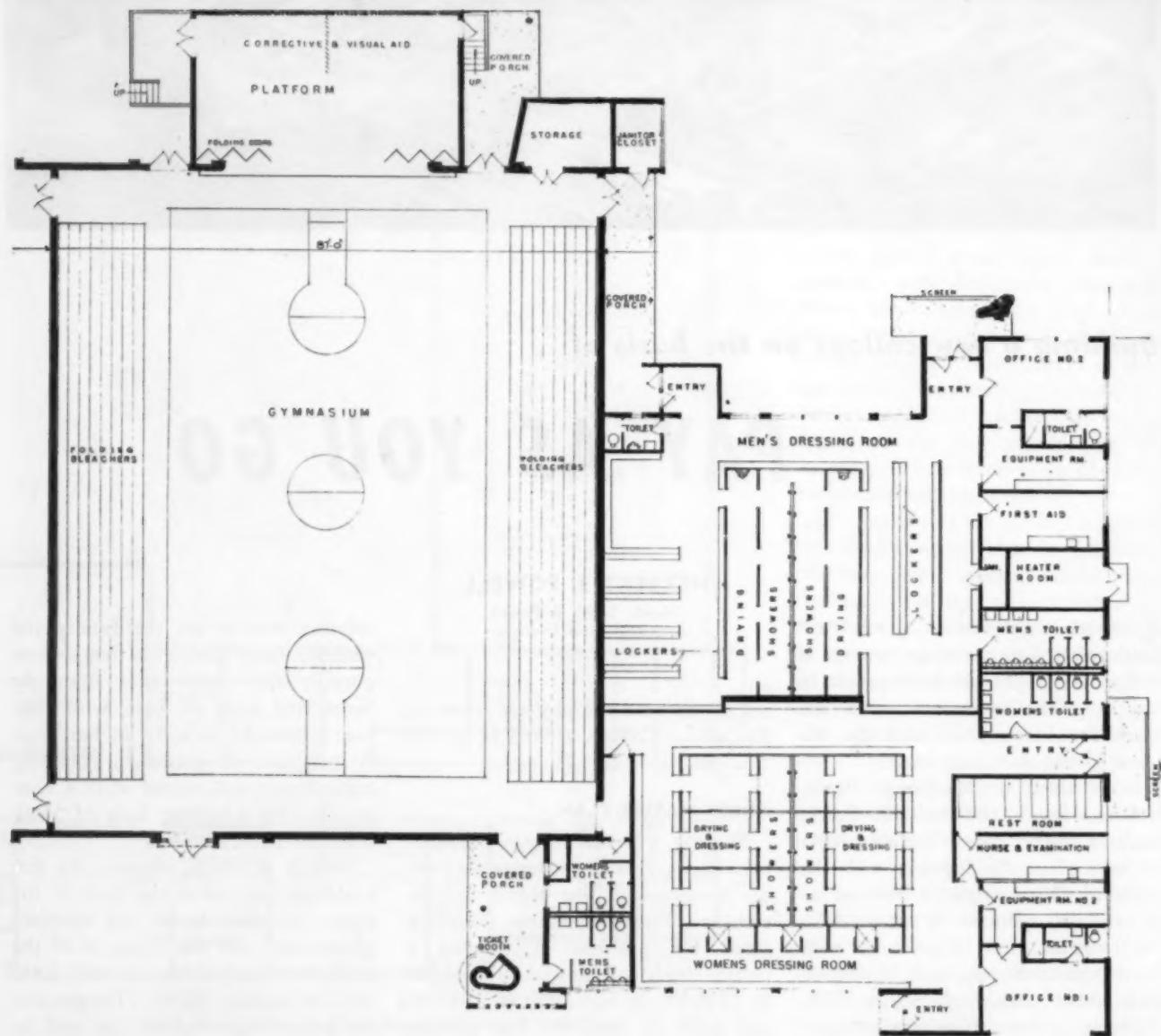
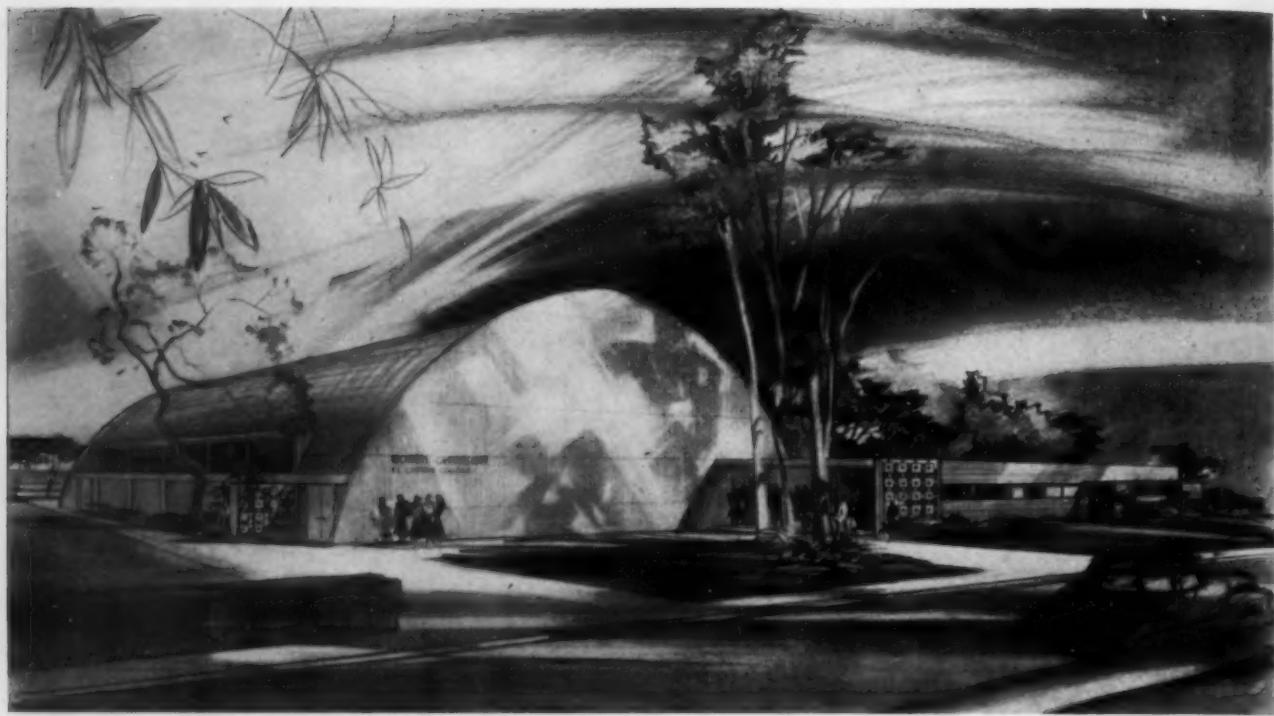
Starting with an 80 acre site, part of Alondra Park, a county project under development, the board of trustees and President Forrest Murdock faced the problem of creating a campus for a college with no students in 1946-47. It had 1400 in 1947-48 and 2450 in 1948-49. The obvious

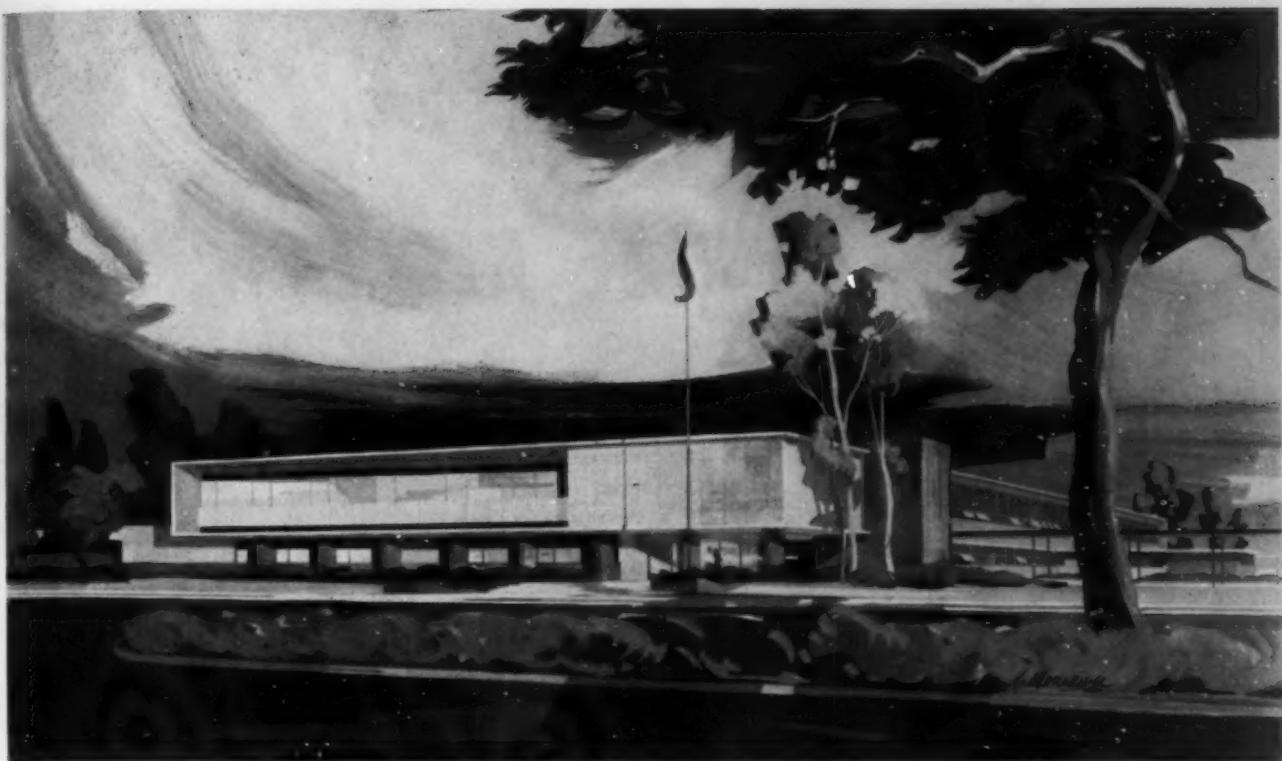
solution was to get the faculty and students under roof, even though temporarily the roofs came from the Santa Ana army air base, with clapboard barracks to serve as buildings. A program of permanent building construction was started after a master plan for a student body of 5000-plus had been adopted.

Strictly according to plan, the first buildings are the initial unit of the shops, the field house and women's gymnasium, and the filling in of the earth for what ultimately will be a stadium seating 20,000. Temporarily the women's gymnasium also will be

A BRAND NEW COLLEGE, PART OF California's junior college system, is still in the process of development in Los Angeles County; it serves the southwest beach areas and the adjoining manufacturing centers.

In addition to Manhattan Beach, Hermosa Beach, and Redondo Beach, students attend from Torrance with its steel plant, El Segundo with the Standard Oil Company's refinery as its principal industry, Wiseburn with the Douglas plant, Hawthorne with the Northrup factory, and Inglewood with other industrial plants. The character of the college district natu-





Opposite Page: Among the initial units is the women's gymnasium, which temporarily is being used by men also. In addition, it is used as a temporary auditorium.

Above: Next in El Camino's construction program will be the administration-classroom building.

Right: A student union, soon to be erected in the future, will be used for the teaching of restaurant operations and management.



used by the men and will serve as a temporary auditorium.

The next units in the construction program will be an administration-classroom building and a student union. The latter, designed with a large cafeteria and a kitchen, was set up with the counsel of specialists in the field, to be used also to teach restaurant operations and management.

Since the construction is being done on a pay-as-you-go basis, *i.e.* on a tax levy yielding approximately \$800,000 a year, it is possible to schedule two or three years ahead for the construction program for this district with an assessed valuation of \$200,000,000.

The college district purchased the acreage from the county for \$80,000, which, by agreement, is being spent by the college for recreational facilities to be used jointly by college and public. The stadium is part of this project. In addition, there will be 10 tennis courts, basketball courts, a baseball diamond, a track, and several practice play fields.

As the college features a curriculum with two-year terminal courses, future construction contemplates a well developed commercial department building and home economics department, and a well developed shop program to be housed in a large industrial type

of building covering more than 2 acres. Each shop construction increment has been designed to form part of the future complete shop.

Offering courses in more than 125 different subjects, El Camino College trains its students in such subjects as salesmanship, accounting, secretarial work, merchandising, auto mechanics, radio-television, peace officer work, advertising art, and radio announcing. El Camino College also offers the first two years of college courses toward premedical, predental, prelegal, pre-teaching, prenursing, preengineering, preoptometry, prepharmacy and pre-music degrees.

College union at Michigan State is proud of its

# PRIZE KITCHEN

**L. W. SCOTT**

Manager, Michigan State College Union  
East Lansing

**DESIGNS FOR THE UNION BUILDING**  
cafeteria at Michigan State College were geared to the speed of a fast-paced lunch period and the need for serving some 1500 students and faculty in one hour. The open square type of service, installed on the campus for the first time, increased the traffic count to 22 per minute. Outstanding restaurant people using this plan acted as consultants in the design.

Speed in the service area reached a maximum mainly because long lines of patrons were eliminated. Diners were able to shop between counters without delaying others. The tray and silver counter was placed centrally, equidistant from all food counters.

The kitchen, focal point of the cafeteria, prepares 80,000 meals a month, plus food for a banquet service of 30,000 meals a month, and also does the general cooking for a student grill serving 90,000 meals a month. One central dishwashing room handles service for all three dining units.

Placement of the food supervisor's office provides for constant surveillance of all preparation areas. Management aids include conveniently placed locker and rest rooms, excellent working conditions, and constant control over each phase of the preparing and serving operation.

## **SANITATION UPPERMOST**

Sanitation was a keynote of the planning, and specialists were consulted in an effort to establish simplification of maintenance and insurance of sanitary conditions as dual goals. Toward that end, the kitchen floor was constructed of quarry tile, the walls are glazed tile, and the ceiling is acoustic metal. In the dining room, the floor is terrazzo; wainscoting, a laminated phenolic insulating material; ceiling, acoustical metal. This makes it possible to wash all surfaces.

The dual purpose of sanitation was extended to the design of equipment—removable drawers and bins, rounded corners and lift legs. All equipment was placed out from the walls to facilitate complete washing each day. Ranges and ovens of stainless metal were installed, and cutting boards were made removable for ease in washing.

The kitchen uses all-electric equipment. Power is available to the union without charge.

Present trends of personnel relations influenced the design of facilities that would contribute to the employees' welfare and morale. Modern, well lighted, well ventilated locker rooms with showers were provided. Clean uniforms, towels and hairnets are provided each day. Circulating ice water is on tap. The entire working segment of the cafeteria is air conditioned, and quiet music is played through a central public address system during working hours. Employee response to these features was immediate and improved personnel relations were at once apparent.

The cleaning of vegetables is done in the storeroom as an integral function of the unit. This simplifies the food control system in that vegetables reach the kitchen ready for cooking and in quantities that are easily controlled. Personnel crowding is reduced in the kitchen, excessive soil is reduced, and definite supervision of an important department is possible.

Heated food containers are provided for the handling of cooked foods so that travel by personnel into the serving area is eliminated. Handling is reduced to a minimum and waste motion is eliminated. In the event of a delay in getting food from the kitchen to the customer, the food is kept at

predetermined and preset temperatures.

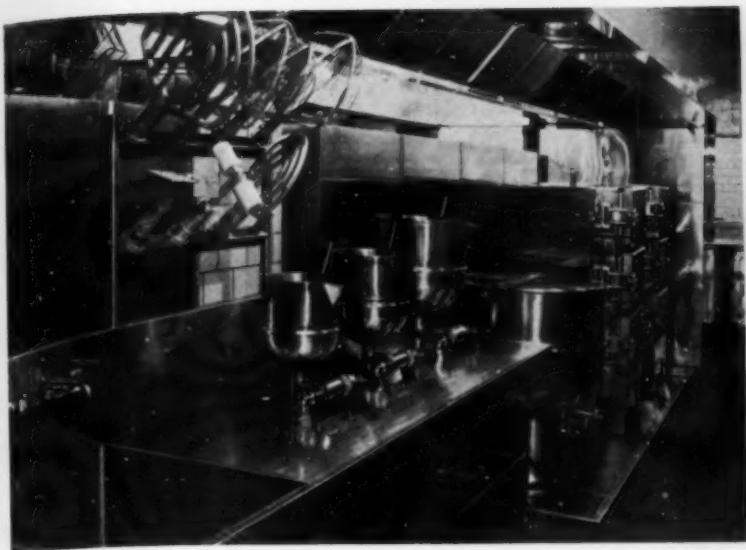
A roast oven and a matching-sized electric food warmer are provided for banquet use.

Vegetable cookery is limited to small portions; vegetables are cooked at 5 minute intervals during the serving period. A bank of 3, 5, 10 and 40 gallon steam-jacketed tilt kettles is provided for this purpose. The two pressure steamers are automatic. Time and thermostatic controls make possible preset cooking times and pressures. When the time has elapsed, the steam shuts off and is exhausted from the cooking chambers. Light indicators show when food is cooking, when cooking is completed, and when steam has been exhausted from the chambers for safety in opening the doors.

## **FOUR DISHWASHING SECTIONS**

Dishwashing facilities incorporate four sections: silver, glassware, china and trays. A conveyor belt carries soiled equipment to the various stations. At the first section, glassware is removed and washed in a glass washer. An attached section blows cool air over the washed and sterilized glasses, making them ready for return to the dining section and immediate use. The second section is for silver and a silver washer and drier is used.

At the point at which china dishes are taken from the conveyor, excess soil is removed by passing the dishes through special equipment. A two-tank machine is used for washing with an attached electronic dispenser for controlling the detergent percentage. A dish drier is attached to the machine. This eliminates hand toweling with its heavy drain on manpower. Dishes are then transferred directly to heated automatic dispenser units



Kettles of various sizes permit small quantity cooking.



Salad preparation section reduces cross traffic.



Stainless metal bake ovens are convenient to work tables.



Ranges are set out from wall for ease in maintenance.



Pre-rinse section speeds up handling of soiled dishes.



A two-tank dishwasher assures peak-load capacity.



There are separate washers for glasses and silver.



Open square layout reduces traffic problems.



Hot food counter arranged for customer convenience.



Beverage and dessert counter are efficiently arranged.



Attractive salad counter is merchandising medium.



Well lighted dining area is popular with students.

and are returned to the serving areas. Trays, however, are hand-washed in a special sink compartment if soil is not excessive; when excessive soil clings to the trays, they are washed in the dishwasher.

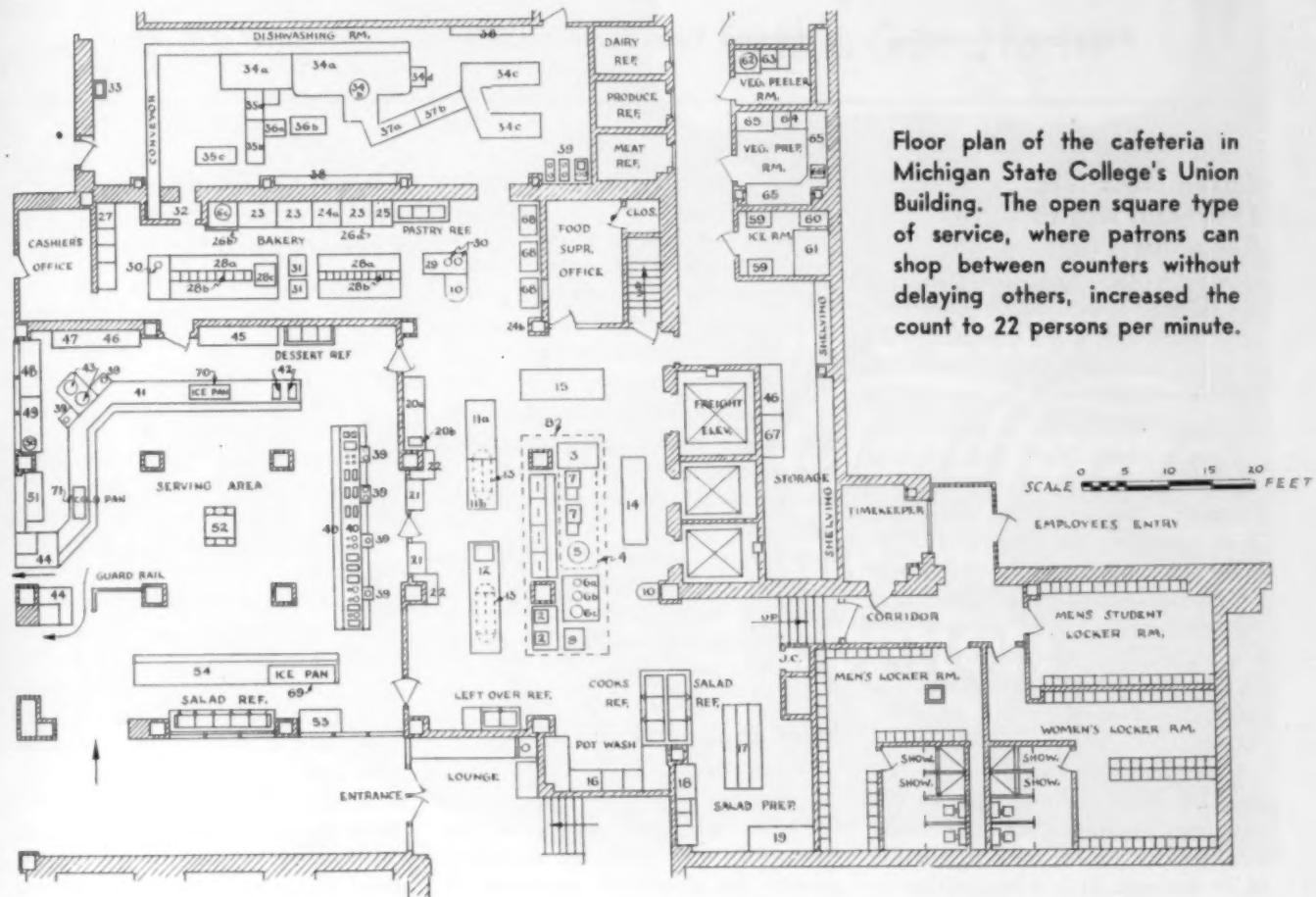
The coffee-making operation utilizes a specially constructed unit of two

12 gallon urns with a hot water jacket. Equipment includes pumps and meters to make it as automatic as possible.

Thermostats set at a minimum 200° F. and a maximum 210° F. retain the coffee and water at temperatures recently recommended in coffee research. Another feature is the facility of

drawing from both sides of the urn, making possible increased speed.

The storage area is small in relation to the kitchen, but a modern food stores building on the campus provides daily deliveries not only of fabricated meat cuts, but of produce, groceries and dairy products as well.



#### KEY TO PLAN OF KITCHEN AREA

1. Ranges	17. Salad work table	33. Waitress lavatory	46. Ice cream cabinet
2. Fryers	18. Salad dept. sink	34a. Soiled dish table	47. Dish storage
3. Roast oven	19. Salad dept. work table	34b. Prewasher & disposal unit	48. Dish & glass storage table
4. Floor pan	20a. Bread cutting table	34c. Clean dish table	49. Ice bin, ice tea & lemonade cooler
5. Steam jacketed kettle (60 gal.)	20b. Electric toaster	34d. Soiled dish table	50. Hot chocolate urn
6a. Steam jacketed tilt kettle (5 gal.)	21. Electric food warmer	35a. Glass washing machine	51. Glass storage table
6b. Steam jacketed tilt kettle (10 gal.)	22. Irregular shaped loading table	35b. Glass drier	52. Tray & silverware stand
6c. Steam jacketed tilt kettle (20 gal.)	23. Bake oven	35c. Glass drying rack	53. Salad makeup table
7. Pressure steamer	24a. Pastry stove	36a. Silver washer	54. Sandwich & salad counter
8. Ventilating hood	24b. Drinking fountain	36b. Silver drying table	59. Ice cube maker
9. Sink	25. Proof box	37a. Dish machine	60. Ice flake maker
10. Electric mixer (80 qt.)	26a. Ventilating hood	37b. Drier	61. Insulated ice storage bin
11a. Bain-marie	26b. Floor pan	38. Dish shelving	62. Vegetable peeler
11b. Cook's table	27. Baker's sink & drain table	39. Automatic dish dispenser unit	63. Portable sink
12. Cook's table with hand sink	28a. Baker's work table	40. Hot food counters	64. Vegetable preparation sink
13. Triple row sauce pan rack	28b. Spice bins	41. Irregular shaped bread, pastry, dessert and drink service counter	65. Vegetable preparation work table
14. Work table	28c. Pie crust roller	42. Hot roll electric warmers	66. Vegetable cutter
15. Banquet work table & electric food warmer	29. Mixer table	43. Twin coffee urn (24 gal.)	67. Reach-in freezer
16. Pot washing sink & drain table	30. Electric mixer (20 qt.)	44. Checker's stand	68. Food trucks
	31. Pastry rack	45. Pastry storage & cutting table	69. Salad display
	32. Double subveyor & conveyor		70. Dessert display
			71. Milk display

# NEWS

**First Effects of Korean War on Campuses . . . A.C.E. Calls Conference on Emergency**

**Planning . . . May Expand R.O.T.C. Soon . . . Columbia to Supply Office Funds for**

**Religious Counseling . . . Harvard Votes to Increase Faculty Retirement Benefits**

## **Columbia Gives Financial Aid to Religious Program**

NEW YORK.—Columbia University has adopted a new policy whereby a substantial part of the expenses of the religious counselors of the four major faiths on its staff will be assumed by the university.

Dr. Grayson L. Kirk, vice president and provost, reports that in the past the entire expense of the counselors' work, including the salaries of secretaries and office costs, has been borne by the various religious agencies in the community. Under the new program, Columbia University will supply all funds for clerical assistance and will make contributions toward office expenses.

Commenting on the university's action, Dr. Kirk asserts: "This step is but one illustration of Columbia's steadfast concern for the religious life of its students. It is a recognition of the university's own responsibility in this regard, a responsibility discharged all through the years by the maintenance of the chaplaincy; in more recent decades by the cooperation, encouragement and official status afforded the religious groups on the campus, and currently by the expansion of the undergraduate curriculum in religion to include 36 courses covering every major field of religious thought."

## **Colleges Draft War Emergency Plans**

WASHINGTON, D.C.—Early in July, the American Council on Education held a meeting of representatives of national education organizations and appropriate governmental agencies to consider the effective rôle of colleges in meeting the emergency created by the Korean and world situation.

The conference discussed three issues: (1) desirable policy affecting

students and staff in the event Selective Service is reactivated; (2) policy regarding technical personnel not subject to Selective Service but whose services might be required by government or industry; (3) effective utilization of physical facilities and staff for training military and civilian personnel.

The American Council on Education and its committee on relationships of higher education to the federal government will continue to review the issues involved in possible war mobilization as related to colleges. The committee has asked college administrators to indicate how they believe their institutions can best contribute in the war emergency.

## **May Expand R.O.T.C.**

WASHINGTON, D.C.—As a result of the Korean war, it is expected that the House and Senate armed services committees will shortly act on bills to provide for immediate expansion of R.O.T.C. training for the army, air force and navy. One official has estimated that this will involve an expenditure of more than \$75,000,000, which will have a tremendous impact on the college campuses of this country.

## **Income Tax on Fellowships?**

WASHINGTON, D.C.—On the matter of whether fellowships or scholarships should be taxed, the Bureau of Internal Revenue, through its deputy commissioner, has ruled that the basic criterion for the determination of whether the fellowship or scholarship shall be subject to income tax is whether or not it is solely for the benefit of the individual. It appears that each case will be decided on its merits and that in case of doubt the holder of a fellowship should submit his case in written form to the Commissioner of Internal Revenue for a ruling.

## **Effect on Campuses of War Situation Reviewed Briefly**

WASHINGTON, D.C.—The troubled situation in Korea has already affected colleges and universities and may have more serious results if world conditions become more unsettled.

The program for loans to educational institutions for the construction of housing facilities had just become law (P.L. 475), and the administration of the program was getting under way. A directive from President Truman to Administrator Foley of the Housing and Home Finance Agency has suspended for the present time further activity, and no financial commitments are to be made to colleges and universities. This is most unfortunate, some authorities believe, since P.L. 475 would aid colleges in constructing facilities which are urgently needed and which could be used in serving the armed forces and other governmental agencies in the case of an emergency.

According to Washington observers, it is likely that the Korean situation may cause curtailment and restrictions in the use of building and construction materials. As we go to press, no such restrictions have gone into effect, but college administrators should be prepared for allocations and perhaps rationing of these materials if the situation becomes worse.

No adverse effects have been felt by colleges and universities in the prospects for extending social security to these institutions. Proposed amendments to present social security laws have already been reported favorably by the joint House and Senate committee, and it is expected that the revised bill will be passed by both bodies and signed by the President in the near future.

The proposals to revise corporation and income tax laws to reach contro-



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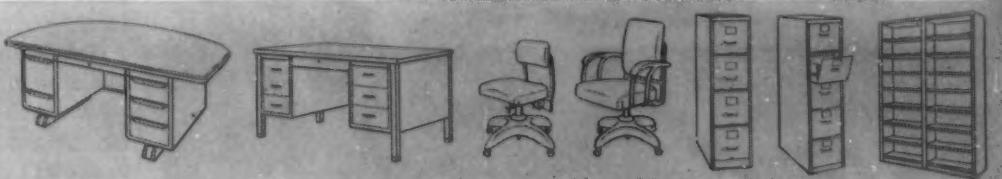
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# NEWS. . . . .

versial questions of taxation on businesses and real property owned by, or for the benefit of, colleges and universities have been shelved for the present and likely will not be considered by Congress this year.

Chairman Rankin of the House veterans' committee says it is too soon to start work on providing amendments that would make it possible for veterans of the Korean war to be eligible for benefits of the G.I. bill.

## Trinity Develops Program

HARTFORD, CONN.—Trinity College recently launched a long-range development program in which it plans to earmark \$2,500,000 in future gifts for additional professorships to support general salary increases for the faculty, to add new courses, and to enlarge the teaching staff. The institution's endowment will be increased by \$1,500,000 to provide additional aid in the form of scholarships.

## Harvard Increases Retirement Benefits

CAMBRIDGE, MASS.—Following a two-year study, the Harvard Corporation has voted to increase the university's contributions to its faculty retirement plan. Under the new plan, the university will raise its contributions from 5 to 7½ per cent of the salary of each faculty member and administrative officer, and each participant will continue to contribute 5 per cent of his salary, thus providing the basis for larger retirement benefits in the future.

The new plan replaces one that has been in effect since 1936. It offers each faculty member and administrative officer a choice between having future contributions accumulated for him in the university's general investment account or used to purchase an annuity contract from Teachers Insurance and Annuity Association. The plan took effect July 1, but faculty members have until November 1 to exercise their option.

Recently, Harvard officials announced that as of July 1, 1950, the university's 1948 retirement plan for employees other than faculty members and administrative officers had been modified by a decrease in employee contributions and by the inclusion of minimum retirement benefits for specified lengths of service.

## Recreation Building for Mary Baldwin College

STAUNTON, VA.—According to a recent announcement by President Frank Bell Lewis of Mary Baldwin College, plans have been developed for a new building to house student recreational and social activities at the college. Construction on the project will begin this summer.

The new structure will be three stories in height, with pillared frontage, in keeping with other college buildings. It will be of fireproof construction, masonry and steel, with the brick facing painted white to conform with other buildings. The building will house the college bookstore, post office, student telephones, and a lunch room.

The main floor will contain a large social room, while the third floor will accommodate two or more sitting rooms, and a locker room for day students.



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## Part of Financial Woe Due to "Fancy Projects"

NEW YORK.—A preliminary finding of the Commission on Financing Higher Education, which is operated on grants from the Carnegie and Rockefeller foundations, shows that part of the financial problem of colleges is the competition with other institutions. In "keeping up with the Joneses" they are wasting funds on fancy projects.

The commission has not completed

its summary report, but it is likely that when it is submitted in the fall, the report will call for more regional education programs and the elimination of expensive research at liberal arts colleges.

It is apparent from the study that state institutions are facing problems in financing as well as the private colleges are and that, in general, teachers' colleges are not receiving funds comparable to those given other professional schools.

#### In general, gifts and alumni fund

drives appear to be holding up well, according to the commission's surveys.

## Traveling Placement Officers Pays Carleton

**NORTHFIELD, MINN.**—Dr. Leith Shackel, director of the Carleton College Placement Service, and her assistant, Jane Andrews, recently embarked on a 5000 mile business trip, making contacts and gathering information to be used in the vocational guidance and placement program for Carleton students.

In the last three years, Dr. Shackel and Miss Andrews have traveled more than 15,000 miles and made about 650 calls on businesses, industries, graduate schools, social welfare agencies, and other organizations. This unique feature of travel by Carleton's Placement Service directors is one reason that placement averages close to 100 per cent for every Carleton graduating class.

Information gathered during these trips includes whether or not the business or industry has a training program, what positions are available to liberal arts graduates, whether or not preference is given to graduates with certain major fields, opportunities for advancement, opportunities for women, wages, working hours, pensions, possibilities for summer work, recruitment programs, location of other plants or offices, and procedures to be followed in recommending students.

## DePauw Makes Student Government Survey

GREENCASTLE, IND.—A recent survey of student government practices at 44 colleges and universities conducted by a committee at DePauw University revealed several highlights of interest to college administrators responsible for student counseling work.

Of all the colleges and universities surveyed, an average of 55 per cent of all students voted in student elections. In schools without fraternities or sororities, the average vote was 79 per cent. Thirteen colleges used the senate system and 20 of them elected members of the student government groups at large. The average size of the student governing group is 18.5 members.

Results indicate that the higher the percentage of Greek letter organ-

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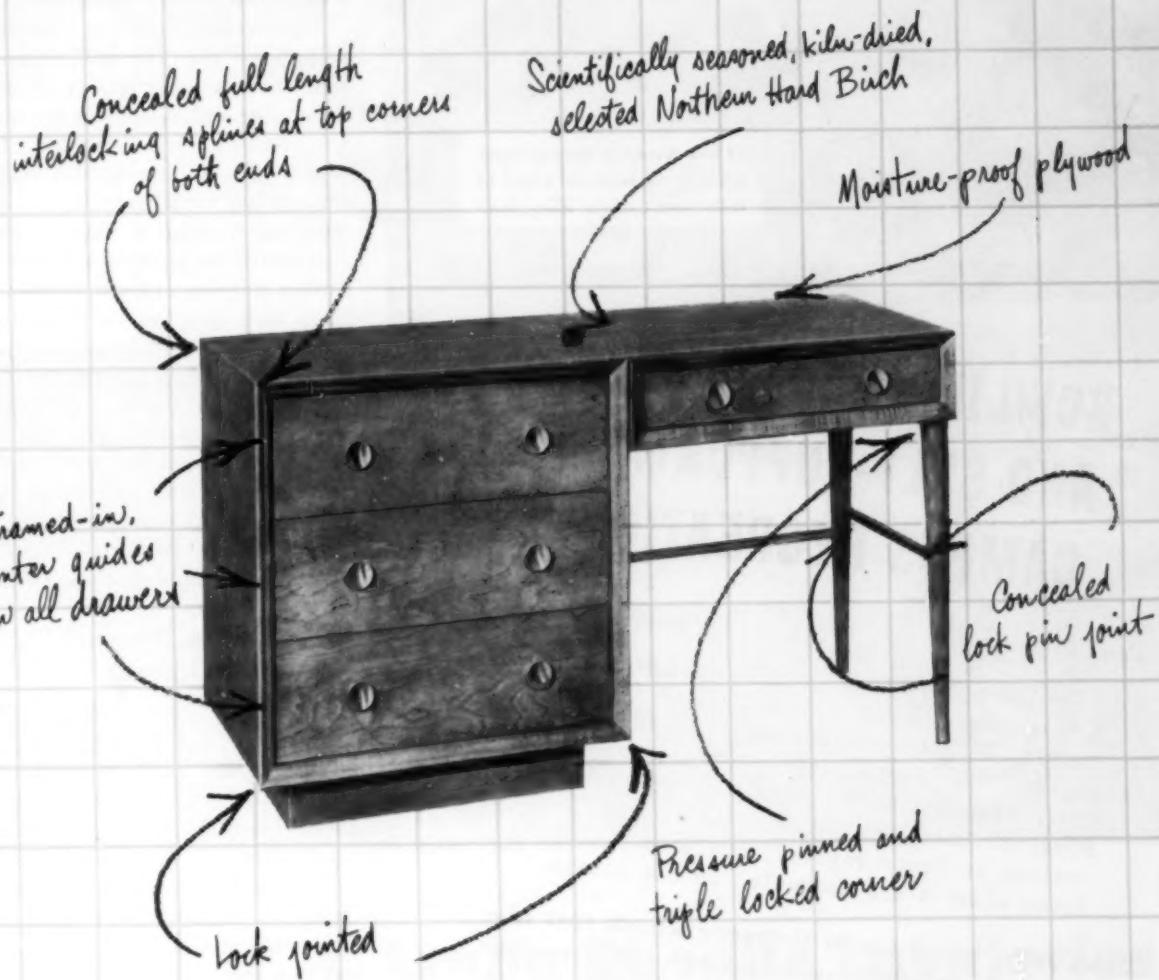
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## NEWS . . . . .

ization the less politically organized the vote seemed to be. The survey revealed that political parties were not in existence on 28 campuses, and only 12 of the 44 colleges answered "yes" to the question concerning the existence of organized parties. Among those colleges with more than two-thirds of the campus organized, only one school had fixed parties.

### V.A. Has New Rule on Supplies and Equipment

WASHINGTON, D.C.—A recent regulation by the Veterans Administration initiates a new policy in relation to supplies and equipment for veterans in education and training. Under present regulations, the V.A. will continue to pay for all supplies and equipment for training as long as they are customarily required of all students in similar training and the veteran must have such supplies on hand at all times. Tools that belong to an institution if issued from a central tool room or used only to demonstrate processes will not be paid for.

The V.A. states that the institution must purchase such equipment on the basis of bids from three dealers or distributors and that the V.A. will pay only the amount of the lowest bid.

### North Texas Starts 11 New Buildings

DENTON, TEX.—A \$5,250,000 building program undertaken this summer will bring the North Texas State College physical plant up to an estimated worth of \$12,381,028, according to President W. J. McConnell.

The summer building program includes 11 structures; a science building, men's physical education building, and two residence halls will be ready for occupancy in September.

Construction work began last month on a women's gymnasium, education building, and library annex; these should be completed in one year's time. Last approved of the group of new buildings—a women's residence hall, two dormitories for men, and a football stadium to seat 20,000 spectators—should be completed by September 1951.

### It's Now Kendall College

EVANSTON, ILL.—The name of Evanston Collegiate Institute has been changed to Kendall College by action

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of the trustees and members of the corporation. The new name honors the Kendall family, benefactors of the school. Two brothers, H. R. Kendall and G. R. Kendall, recently established the Kendall Foundation in memory of Curtis P. Kendall, another brother. Transactions now in progress indicate that funds from the foundation will be available for operating expenses of Kendall College within a year's time. At a later date, funds may be available for capital expenditures.

## \$13,219,350 Budget for New York's Colleges

NEW YORK.—The Board of Higher Education, in a closed meeting, recently adopted a report by its master plan study committee calling for an expenditure of \$13,219,350 on capital budget projects for 1951.

The report was based on a master plan study given to the board last February by Donald P. Cottrell, dean of the College of Education of Ohio

State University, who had been requested to make a study into the needs of the young people of New York City for public higher education in the next two decades.

## New Steam Plant for Slippery Rock College

SLIPPERY ROCK, PA.—A new central steam heating plant for Slippery Rock State Teachers College is being designed. A three-story brick and steel frame building, 70 by 80 feet, will house three boilers. A radial brick chimney, 175 feet high with an inside diameter of 6 feet at the top, will also be constructed for the plant.

The basement of the building, which is adjacent to the athletic field, can be used as a locker room and field house. Laundry facilities will be installed on the main floor.

The two new boilers are designed for a 20,000 pounds' per hour continuous rating, and a four-hour peak rating of 25,000 pounds per hour; they will operate at a steam pressure of 120 pounds per square inch.

### **Bookstore Discounts to Employes, Faculty**

BERLIN, OHIO.—A recent survey by the National Association of College Stores reveals that 44 stores, or 16 per cent of those responding in the survey, offer no discounts to employees or faculty of the school. Eighty per cent give discounts to other employees or faculty.

Nineteen per cent of the stores do not handle trade books (this does not include those stores that give no discount). However, of the 167 stores giving a discount, 110, or 67 per cent, give a discount ranging from cost to more than 20 per cent.

Two hundred seven stores in the survey give discounts on textbooks, with 52 per cent of them giving a 10 per cent discount. Stationery discounts vary more than do those of any other item; most stores discount between 10 and 20 per cent.

### Planned Social Science Hall

The architectural firm of Magney, Tusler & Setter, Minneapolis, should have been credited with the plans of the new building for social science at the University of Minnesota described on pages 32 and 33 of the July issue of this magazine.



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Norcor's tubular steel desk and chair set has many unique structural advantages. Straight, rather than tapered legs, provide larger floor contact and better glide. Desk frame, which features a continuous leg stretcher, is welded into one integral unit for stronger, permanent rigidity. Chair frame is also unit welded and features an angle steel seat brace, book storage type leg stretchers. Polished glides on both units are removable only by use of a tool. Desk in standard heights of 30, 29, 26 and 23 inches. Chairs in seat heights of 13, 15, 17 and 18 inches. Optional sizes available. Choice of solid hardwood or curved plywood in Natural or School Brown finish with Brown, Taupe or Beige frames.

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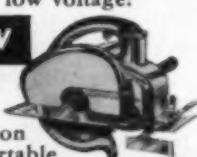
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Get your floors in shape with more speed and lower cost! Use a new American Super 8—cuts twice as fast as standard 8" floor sander! 2 H.P. motor . . . drum driven by variable speed transmission . . . drum speed range from 1600 to 2800 r.p.m. assures greatest efficiency under varying conditions . . . correct drum pressure selected by variable control—52 lb. to 103 lb.—to meet all conditions in floors. Operates efficiently even with low voltage!



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Save time and labor in school maintenance and construction with American Portable Electric Saws. 10 times faster than hand sawing. Cuts wood, stone, metal, tile, compositions. Big power. Motor develops 2 1/2 H.P. with blade speed 5400 R.P.M. Easy one-hand operation. 8 1/2" blade makes 3" straight cut, will cut 2 1/2" plank at 45° angle.



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# NEWS . . . . .

## Veteran-Teachers Get Special V.A. Treatment

WASHINGTON, D.C.—The Veterans Administration has announced that it will give "special consideration" to veteran-teachers who plan to spend their summer taking graduate G.I. bill training after the July 25 cut-off date.

V.A.'s regulation on the deadline, based on the G.I. bill, states that veterans discharged before July 25, 1947, must have started training by July 25, 1951, if they want to continue. Those discharged after July 25, 1947, have four years from their discharge date in which to begin.

After the cut-off date for starting, veterans will be expected to remain in continuous training in order to stay on the G.I. bill rolls. An exception has been made for interruptions for reasons beyond a veteran's control.

Veteran-teachers who take graduate courses under the G.I. bill during succeeding summer vacations may continue to do so after the entrance deadline, so long as their courses were started prior to the cut-off date and are resumed every year, V.A. ruled.

The teacher will have to meet certain qualifications. His study must lead toward a degree; he must be continuously employed as a schoolteacher, and he may not skip any G.I. bill summer sessions.

Summer training by teachers for the purpose of obtaining a degree is a "long recognized practice" of the profession, V.A. pointed out. Because of the veteran-teacher's "unique" position, V.A. said, it will consider him to be in "continuous pursuit of his course . . . within the meaning of the governing law and regulations," so long as he takes courses each summer with the objective of getting a degree.

## Orange County, N.Y., Starts New College

MIDDLETOWN, N.Y.—As a result of intensive community effort, a new college, known as Orange County Community College, will open in September to serve the students of Orange County.

Interest in establishing a community college stemmed from the fact that a report by the state education department four years ago disclosed that fewer young people from Orange County attended college than from any other area in the state. This lack of

participation in college education by their young people spurred citizens of the area toward establishing a new college.

As a result of a generous gift from Mrs. Christine Morrison, an estate of 18 acres with a four-story stone residence, a smaller building, a concrete garage, and a modern barn and greenhouses will serve as the nucleus for the campus.

The new institution has been approved by the State University of New York and expects to have an enrollment of 200 students and a faculty of 15 when the doors open on September 21. For county residents, tuition will be \$600 a year, with one-third provided by the state, one-third by the county, and the remainder to be paid by the students.

## GIFTS AND BEQUESTS

- Smith College, Northampton, Mass., announces that its four-year goal of \$7,000,000 for a 75th Anniversary Fund has been reached. The fund campaign represented contributions by more than 20,000 persons; 83 per cent of the Smith College graduates have contributed to the campaign.

- Antioch College, Yellow Springs, Ohio, hopes to raise \$125,000 for an engineering building. Alumni will set up campaigns in major cities in the nation and also conduct a direct-mail effort.

- Princeton University during the last year has raised more than \$500,000 from 10,800 alumni, parents and friends of the institution.

- Tufts College, Medford, Mass., announces a Second Century campaign for \$4,200,000 needed for endowment of faculty salaries, establishment of scholarships, special equipment in the medical and dental schools, and completion of a student activities center.

- Ohio State University, Columbus, has received two gifts totaling \$15,400 for research projects. A grant of \$10,000 will finance fundamental research in the department of chemistry, and the other one will be utilized for an industrial relations' performance survey.

- Yale University reports that \$770,182 has been contributed by alumni through the efforts of the Yale Alumni Fund organization. The average gift was \$36.79, which represented an increase of \$9.62 over that of the previous year.



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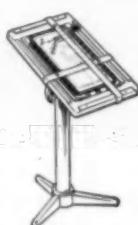


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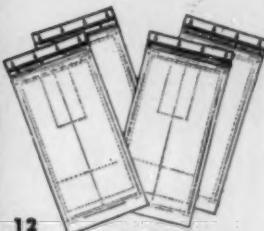
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Make your copies attractive and more effective. You can use these inks without cleaning mimeograph cylinder.

# NEWS . . . . .

## Princeton Project

PRINCETON, N.J.—Dr. Harold W. Dodds, president of Princeton University, recently announced that construction will soon begin on the new \$500,000 building to house the university's Woodrow Wilson School. The Woodrow Wilson School of Public and International Affairs was founded in 1930 to combine work in history, economics and political science for students preparing for public affairs or related fields.

## Sliding Walls for Cleveland College

CLEVELAND.—Sliding walls and collapsible classrooms will be a feature of the new Cleveland College.

The front of the building, except for elevator shaft space, will be made up of windows, providing each classroom with improved lighting and ventilation.

According to Dennis Blair, who was the designer, the movable wall in classrooms will be made of light

weight metal which can be unbolted from the floor to lengthen or shorten rooms according to registration requirements. Corridor walls will contain storage cabinets for supplies.

## University of Omaha Has Big Budget Increase

OMAHA, NEB.—Regents of the University of Omaha recently voted a 1950-51 budget of \$1,198,057, which represents an increase of \$104,236 over the current budget.

The continued increase of salaries and operating costs caused the board to vote an increase in tuition fees of from \$5 per credit hour to \$6 per credit hour, effective Sept. 1, 1950. The additional nonresident fee will be increased from \$3 to \$4 per credit hour, it is announced.

In this year's budget, salaries will account for the largest single expenditure. Faculty salaries recently have been increased, according to merit, upon the recommendations of the department heads, the deans, and the president.

## Bulletin Board Subject of New Film

COLUMBUS, OHIO.—Ohio State University recently announced production of a filmstrip produced by its teaching aids laboratory on the subject "How to Keep Your Bulletin Board Alive."

The filmstrip, by a series of cartoon representations, attempts to diagnose the present faults of most bulletin boards. It then proceeds to suggest some general rules about captions, illustrations and text materials which will help a person preparing a bulletin board to improve his layout technic. The film should be of considerable help to administrators in maintaining or in improving appearance of college bulletin boards around the campus.

## \$3,000,000 Program

DENTON, TEX.—By action of the regents of North Texas State College, a \$3,000,000 building program has been launched which will provide for the construction of three new buildings—an education building, a women's gymnasium, and an addition to the library—and will also permit the completion of construction work under way on a science building, men's gymnasium, and men's residence hall.



No. 85—Cast bronze—combination type. The combination can be readily changed—3 $\frac{1}{2}$ " wide, 5" high, 14" deep—outside measurements.



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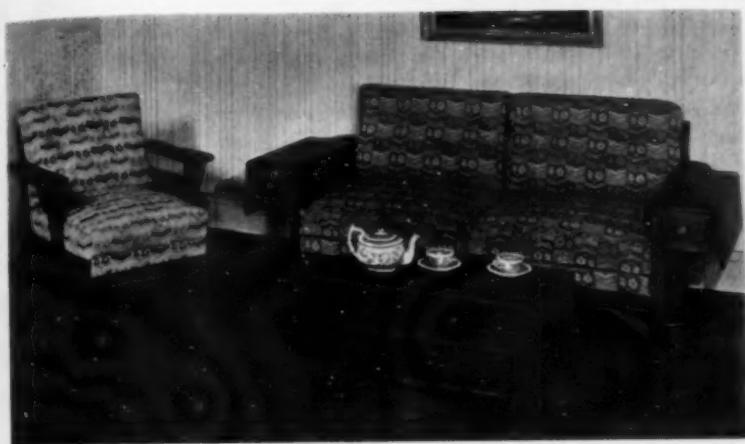
Write today for the free copy of the illustrated pamphlet (LB) describing letter boxes.

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# NEWS. . . . .



H. W. Loman

H. W. Loman, former purchasing agent at Pennsylvania State College, State College, Pa., has been named purchasing agent of the University of Houston.

Mr. Loman's appointment becomes effective September 1. Other appointments at the University of Houston include the naming of Dr. Terrel

Spencer, former registrar, to the post of vice president of student services, and of Dr. C. F. Hiller, dean of the College of Arts and Sciences, to the vice presidency for university development and public relations. C. E. Cole, university auditor, has been promoted to controller and assistant business manager, and C. F. McElhinney, formerly business manager, to vice president and business manager.

Rev. Harold Wayland Tribble, president of Andover Newton Theological

School, Newton Center, Mass., recently assumed the presidency of Wake Forest College, Wake Forest, N.C., where he succeeded Thurman D. Kitchin, who resigned.

W. Emerson Gentzler, business manager of Columbia University, New York City, has been named assistant



W. E. Gentzler



T. A. McGahey

provost and director of student interests at the university. Thomas A. McGahey, director of university residence halls and assistant to Mr. Gentzler, has been chosen business manager. Joseph P. Nye, assistant director of university residence halls, becomes director.

James W. Griswold of Park College, Parkville, Mo., has been named treasurer-elect of Phillips Exeter Academy, Exeter, N.H., to succeed Corning Benton, who will retire after 40 years of service to the academy on Aug. 31, 1951. Mr. Griswold will assume his duties at the school on September 1 of this year.

Olaf Lundberg, chief accounting officer of the University of California, Berkeley, has been named controller of the university. No change in duties is involved in this change of title, but it is in line with the trend toward designating the chief fiscal accounting officer as controller.

Karl E. Metzger, assistant to the president of Rutgers University, has been appointed secretary of the state university. As secretary of the university, Mr. Metzger will continue to serve as general assistant to the president and also will assume general supervision of the official publications and public ceremonies of the institution.

Joseph Staples, a member of the faculty of Phillips Academy, Andover, Mass., has been named to an administrative post at Wilson College, Chambersburg, Pa. At Phillips Academy he was an instructor in French.

Malcolm A. Love, dean of the College of Arts and Sciences at the University of Denver, will succeed John O. Moseley as president of the University of Nevada. Dr. Love's appointment will become effective September 1.



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3. Secure prices on laboratory equipment directly from *professional* manufacturers of these materials.

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Cut your dinnerware costs in half with Jade-ite Fire-King. **Heat-proof**...will not crack or craze from hot foods. **Stain-proof**...smooth, hard surface will not discolor. **Rugged**...made of durable Fire-King

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# NEWS . . . . .

John Francis White, dean in charge of development at Illinois Institute of Technology, Chicago, has been appointed vice president in charge of development at Western Reserve University, Cleveland. The appointment becomes effective September 1.

Howard R. Taylor Jr., former public information officer for the U.S. Marine Corps Reserve, has been named assistant to the president at Fenn College, Cleveland. Mr. Taylor's appointment becomes effective immediately.

Rev. Edmund F. Christy, O.F.M., has been named vice president and bursar of Siena College, Loudonville, N.Y.

Ellis F. White, dean of State Teachers College, Jersey City, N.J., recently was appointed president of Fitchburg State Teachers College, Fitchburg, Mass. The appointment, announced by the Massachusetts Board of Education, became effective in July.

Rev. Paul Shell Powell, president, Kentucky Wesleyan College, Winchester, Ky., has announced his resignation after 13 years of service with the institution. He has not yet said whether he will return to the ministry or continue in the educational field.

Dale D. Welch, president of Alma College, Alma, Mich., has resigned, effective September 1.

Ira Richardson, president of Adams State College, Alamosa, Colo., announced his resignation recently; he has served the college since its founding in 1925.

Wilbur W. White, president of the University of Toledo, Toledo, Ohio, has resigned for reasons of ill health; his resignation will become effective August 31.

John Maurice Munson, president emeritus of Michigan State Normal College, Ypsilanti, died recently at the age of 72 years. He served as president from 1933 to 1948.

Dr. Charles C. Ellis, president emeritus of Juniata College, Huntingdon, Pa., died recently at the age of 75 years. His presidential term stretched from 1930 to 1943.

Ruth M. Yakel, acting assistant director and therapeutic dietitian of the Indiana University Medical Center, has been named to succeed Gladys E. Hall as executive secretary of the American Dietetic Association. Miss Yakel's appointment became effective July 1.

## DIRECTORY OF ASSOCIATIONS

### Association of College and University Business Officers

#### Central Association

President: John K. Selleck, University of Nebraska; secretary-treasurer: C. C. Long, University of Illinois.

#### Eastern Association

President: H. R. Patton, Carnegie Institute of Technology; secretary-treasurer: Irwin K. French, Middlebury College, Middlebury, Vt.

Convention: December 3-5, Royal York Hotel, Toronto, Canada.

#### Southern Association

President: C. B. Markham, Duke University; secretary-treasurer: Gerald D. Henderson, Vanderbilt University.

#### Western Association

President: Elton D. Phillips, University of Southern California; secretary-treasurer: James M. Miller, University of California.

Convention: May 1951. Santa Barbara, Calif.

#### American Association

President: W. A. Hamilton, Lincoln University; secretary: L. H. Foster Jr., Tuskegee Institute.

Convention: May 1951. Virginia State College, Petersburg, Va.

#### Association of College Unions

President: Duane E. Lake, University of Nebraska; secretary-treasurer: Edgar A. Whiting, Cornell University; editor of publication: Porter Butts, University of Wisconsin.

Convention: April 1951. Michigan State College, East Lansing.

### Association of Physical Plant Administrators of Universities and Colleges

President: E. J. Behler, Yale University; secretary-treasurer: A. F. Gallistel, University of Wisconsin.

Convention: May 1951. University of Oklahoma, Norman.

### American College Public Relations Association

President: Stewart Harral, University of Oklahoma; secretary-treasurer James W. Armsey, Illinois Institute of Technology, Xavier University, Cincinnati.

### College and University Personnel Association

President: George W. Armstrong, University of Pennsylvania; secretary-treasurer, Ruth Harris, University of Illinois.

### National Association of College Stores

President: Ralph Stilwell, UCLA; executive secretary: Russell Reynolds, Box 58, 33 West College Street, Oberlin, Ohio.

Convention: April 29-May 2, Columbus, Ohio.

### National Association of Educational Buyers

President: Rev. J. Leo Sullivan, S.J., College of the Holy Cross; executive secretary: Bert C. Ahrens, 45 Astor Place, New York, N.Y.

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**Business Officer**—8 years' experience in finance and economics; personable and capable of assuming responsibility; sound approach to problems of business and administration; age 32; single; excellent recommendations; desires position with broad outlook; B.S. Degree, Big Ten University. Write Box CW 16, COLLEGE AND UNIVERSITY BUSINESS.

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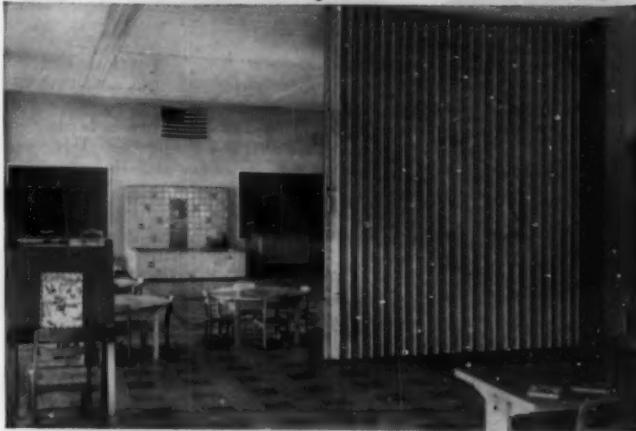
More and more colleges and prep schools have found that under present conditions, running a restaurant is a job for restaurant people . . . that the simple solution to the problem is to put the job entirely in the hands of Crotty Brothers Food Services.

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More school rooms without adding a square foot! That's what these "Modernfold" movable walls mean! Accordion-like in their action, "Modernfold" doors are ideal for dividing large rooms . . . such as lunch rooms and assembly halls . . . into classrooms. Yet, if the area is needed as a single unit, the doors are easily and quickly folded out of the way.

when you need  more usable space!

Need more usable square feet in classrooms, school offices, lecture rooms, around wardrobes? That's a job for a "Modernfold" door, too! It requires no area for door swing. Instead, that area is entirely usable for chairs . . . or perhaps, an extra desk.

when you need  to conserve costs!

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For full details on this low-cost way of relieving your crowded school facilities, look up our installing distributor under "doors" in your classified telephone book . . . or mail coupon.

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Fasten in line as well as being secured firmly to the floor. One of the greatest safety measures ever devised for preventing the tipping and shifting of folding chairs—holds them absolutely rigid.



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(Ganged Chairs)  
showing Flex-Lock  
Fastening System

Chairs can be readily unfastened and used as individual units when desired. Used extensively all over America in college auditoriums, gymnasiums, assembly halls, etc. Write for full details.

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There are more steel folding chairs  
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Rotating dial combination with rust resistant mechanism in a stainless steel case. *Two-year guarantee.*

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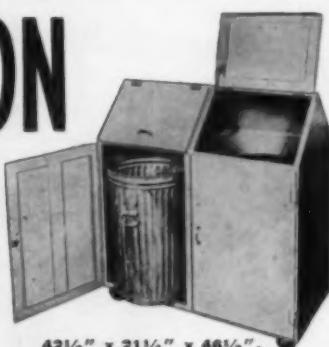
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**Used by Leading Colleges and Schools!**

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New Improved, All-Steel, Odorless Sanitary Refuse Can Container with Built-in DDT Fumigator.



42½" x 21½" x 46½".  
2 cans up to 30 gals. cap.  
each. Ship. wt. approx.  
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Moves Easily and NOISE-LESSLY on its 3-inch Rubber-tired casters.

Ideal for use in cafeterias, kitchens, infirmaries, laboratories, dormitories, corridors, grounds, etc. to eliminate health hazards of uncovered refuse and unsightliness of ordinary refuse cans. Encloses cans completely furnishing positive protection against all animals, insects, and other carriers of disease. No spilling, no mess. Cannot be overturned. Rugged all-welded steel construction. White, aluminum, or green baked enamel finish. Completely weatherproof—for use inside and out. (Simplifies all problems of refuse collection and disposal.) Also available in single units.

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### PROTECTION PLUS

Here are some of the extra protective advantages you get when Realock Fence guards your property.

... All fittings, hinges and locking devices have bolts on the inside, secure from tampering.

... Heavily galvanized by a special process, Realock Fence is weather-resistant, extra strong and durable... costs little or nothing for maintenance.

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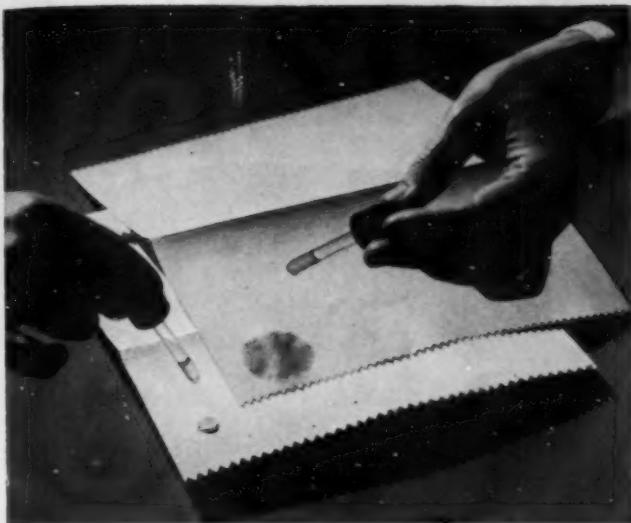
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See how a drop of water is absorbed INSTANTLY by a Mosinee pure sulphate towel (the top one), while the ordinary paper towel (the lower one) "supports" a similar drop, failing to absorb it.

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**PROTECTS  
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Pouring molten bronze into mold at The Chicago Hardware Foundry Company.

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## STOOLS and TABLE BASES



Amber Forever Genuine Cast Solid Bronze Stool. Note base and column are cast in one piece!

Compare the quality of "CHF" stools and table bases with ordinary equipment and you will quickly discover why cast solid bronze, cast aluminum and cast iron finished in chrome or porcelain enamel are the finest stools and table bases made. Base and column are cast in one piece providing a smoother, neater appearance with no joint to work loose. Finishes are lustrous, smooth and as long lasting as the metal itself. You protect your investment when you get these extra built in quality features of "CHF" cast construction!



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Here's just what students want in a recitation or lecture room chair—real comfort—a rigid tablet arm—and a bright, cheery Sun-Tan color.

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## SAFETY AND PROTECTION THAT LASTS AND LASTS

No other fence provides such long-lasting protection at such low cost per year of fence life. No other fence is made of KO-NIK steel which contains copper, nickel and chromium for greater strength and longer life. And in addition, Continental Chain Link fence is galvanized *after weaving* for extra protection against rust and corrosion. For complete information on this better fence, write Continental at Kokomo, Indiana.

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### New! Improved!

Greatly improved manufacturing process makes possible new bonded seam construction. This adds strength, improves appearance, assures cleaner waste handling—your assurance of an even finer Vul-Cot!

For Sale by Stationers and School Supply Houses Everywhere



**Guarantee** This Vul-Cot waste basket with ordinary usage should last a lifetime. It is absolutely guaranteed as to material and workmanship for a period of five years from date of purchase, when used only as a waste basket. If during that time in such service it proves defective, return and a new basket will be supplied.

NATIONAL VULCANIZED FIBRE CO.  
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## Holcomb's WASH ROOM SPECIALTIES

### Holcomb's FAMOUS No. 6 Toilet Brush

"The Stiff 'Wings'  
Clean under the Rim"  
Another Holcomb  
SPEED TOOL!

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Rid rest rooms of objectionable odors with the pleasant fragrance of Holcomb's Freshettes. Easy to use, no fuss or muss... and they last!



### Holcomb's Aerosol

#### DE-ODOR BOMB

Holcomb's DE-ODOR BOMB quickly destroys offensive odors permanently. Easy to use, just spray odors away. Used by hospitals, restaurants, hotels, and schools across the nation.



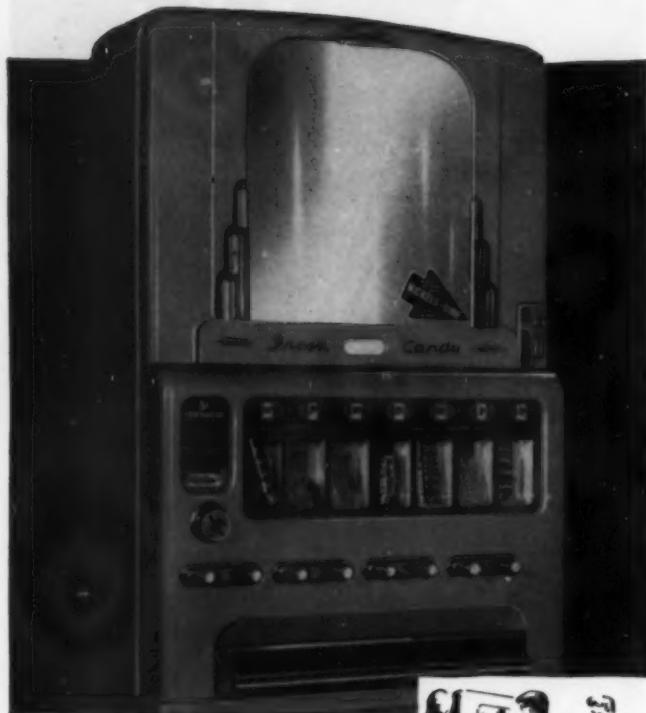
Write for... Holcomb's "Associated Wash-room Items" folder. Holcomb's "Minit-Mizer" items make friends and money for you.

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Candy is a healthful food—and can be conveniently available to your students with UNIVENDOR Candy Vendors. UNIVENDORS will be installed and stocked with the finest brand candies, by a UNIVENDOR operator in your area . . . at no cost to your school. There is nothing to buy. What's more . . . the earnings will be shared with your school—for use in supporting school activities . . . purchasing equipment or as you designate. UNIVENDORS are fully automatic—offer a wide selection and are available in a variety of models. For complete details please mail coupon below.

328 GALE

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ACCOMMODATE YOUR FOOTBALL CROWDS

SAFELY—  
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Universal STEEL Grandstands



LARGE CAPACITY

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Loyal fans who attend your football games and other sporting events deserve both safe and comfortable seating. So don't take a chance. Arrange to accommodate the crowds by increasing your seating facilities with Universal Steel Grandstands . . . long famous for safety, structural strength, simplicity of assembly, comfort, long life, economy, and selectivity of sizes. In fact, Universals are built to hold more than four times the rated live weight load; always meet and usually surpass the most rigid requirements. For prompt action, just select the plan you need from table at left or send us your specifications. Universal engineers will give you a cost estimate immediately. Complete catalog also free on request.

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PLAN	No. 1	No. 2	No. 3	No. 4
Length	90'0"	138'0"	198'0"	234'0"
Rows				
High	8	10	10	12
Capacity	520	1000	1430	2028

### What About Your New Gymnasium?

Don't be caught short. If you have not specified Universal Fold-A-Way and/or Roll-A-Way Stands for safe, comfortable, economical seating in your new gym, act now! These must be fabricated to order . . . and that requires time. So, order today.

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606 SOUTH NEIL STREET • CHAMPAIGN, ILLINOIS  
Bleacher Experts for Over 30 Years

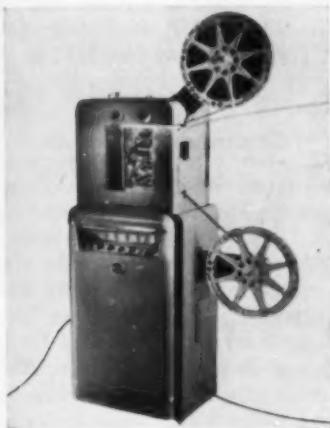
# WHAT'S NEW

August 1950

Edited by Bessie Covert

TO HELP you get more information quickly on the new products described in this section, we have provided the postage paid card opposite page 80. Just circle the key numbers on the card which correspond with the numbers at the close of each descriptive item in which you are interested. COLLEGE and UNIVERSITY BUSINESS will send your requests to the manufacturers. If you wish other product information, just write us and we shall make every effort to supply it.

## Heavy Duty Projector



The new 16 mm. Eastman heavy duty projector has been designed for auditorium and large group purposes. The unit provides high screen illumination and can be used with arc illumination under more stringent projection conditions.

The new Model 25 is the result of years of intensive research and development work to produce consistently high quality motion pictures under exacting requirements of daily use. The projector is intended for permanent installation but can be easily disassembled into three parts for ready portability. The mechanism is divided into two mechanically independent but interlocked assemblies for durability and quietness. The entire projector is designed on a mechanical unit basis for greater efficiency and ease in serviceability. **Eastman Kodak Co., Dept. CUB, Rochester 4, N. Y.** (Key No. 518)

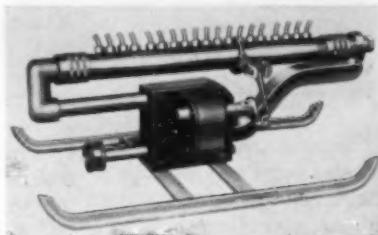
## Crabgrass Control

Crabgrass can be eliminated from lawns through use of a new powder called Scutl. Developed by Scotts Lawn Research and tested on private lawns and by official and college agronomists, Scutl is recommended for use during the period roughly from mid-June to mid-September. The powder is simply scattered over crabgrass areas where it falls on the broad blades. The particles absorb moisture and eventually kill the growth. It is stated that the crabgrass should be killed off before it goes to seed to prevent heavier growths the following year. **O. M. Scott & Sons Co., Dept. CUB, Marysville, Ohio.** (Key No. 519)

## Improved Sprinkler

The versatile "Shower Queen" Sprinkler, which covers a rectangular area up to 3250 square feet, has been redesigned for more efficient operation. The area to be covered is regulated at the faucet by the volume of water used. The "Shower Queen" throws the water high into the air from where it falls gently, wetting the entire area evenly. It is easily adjustable to operate right up to buildings without wetting walls, walks or windows. It is not necessary to shut off the water in relocating the sprinkler as it can be pulled by the hose to the desired position.

Among the improvements in the new model are needle point bearing, changes in the hydraulic motor to increase its power at low water pressures, new combination journal and thrust bearing to provide positive alignment for the gears, adjustment screw to permit compensation for wear after long and constant use,



easily accessible packing gland and runners of a new, more durable alloy metal. The capacity can be controlled for any need up to 300 gallons per hour. **Acme Sprinklers, Dept. CUB, 412 Walbridge St., Kalamazoo 3, Mich.** (Key No. 520)

## Mop Hanger

Mops, brooms, cleaning brushes and other handled equipment can be hung up with the new holder recently introduced by Geerpres Wringer, Inc. Consisting of two wooden rollers on a strong wire clip mounted in an electroplated metal base plate attached by two wood screws to a wall or inside a closet, the holder is designed for use with practically any thickness of handle. The wooden rollers make it easy to snap handles in and out of the holder while protecting the handles from marring or scratching. **Geerpres Wringer, Inc., Dept. CUB, Muskegon, Mich.** (Key No. 521)

## Vinyl Carpeting

Arrazin Carpet is made of tough vinyl plastic over a layer of cellular rubber. It is attractive and comfortable and designed for use in areas subject to constant heavy traffic. It is highly durable and easy to maintain. The non-porous surface is resistant to oil, grease and food stains and to abrasive wear. It does not chip, crack or buckle when properly installed. The sponge rubber base gives added comfort and the carpet is available in 10 rich colors. **Hood Rubber Co., Dept. CUB, Watertown, Mass.** (Key No. 522)

## Improved Sanderplane

The new model American Sanderplane has a new type handle incorporating a safety type trigger handle switch. Improvements have also been made in gear ratio ball bearings and in general machine features to make the Sanderplane more efficient and more easily operated.

The machine is a portable, electrically-driven belt sander suitable for reconditioning of desks and other furniture and for general maintenance work. Because of the high speed of the sanding belt, the Sanderplane is adaptable to metal, marble, stone and other surfaces as well as to wood and brings the material down to a new clean surface easily and quickly. The machine does the whole job, an open coat abrasive being used for the first cut and a fine abrasive for the finish. It is available with or



without a dust collector bag. The **American Floor Surfacing Machine Co., Dept. CUB, Toledo 3, Ohio.** (Key No. 523)

### Electri-economy Typewriter



The new electric typewriter announced by Remington Rand is known as the Electri-economy. Ten engineering improvements have been made in the new machine to assure efficient operation. Important are one-space tabulation, governor controlled tab-key carriage return for wide tabulations, faster space bar operation and key resistance reduced almost 50 per cent.

The new machine is streamlined with chip-resistant gray wrinkle finish and black plastic keys with injection molded characters that will not wear off. The black plastic operating levers and platen knob are designed to resist marking and staining. "Cushion-grip" rubber feet reduce machine sound and slippage. Remington Rand Inc., Dept. CUB, 315 Fourth Ave., New York 1. (Key No. 524)

### Research Microscopes

The Series "E" research microscopes and accessories have recently been introduced by Bausch & Lomb to permit exhaustive study of a wide variety of specimens. All models have an inclined binocular body that can be interchanged with a graduated monocular draw tube for photomicrography, measuring, microprojection and other research applications. The draw tube is adjustable and graduated from 146mm. to 172mm. in tube length. Three types of substages are also provided for routine, specialized and critical research. The new series has other special features and accessories for research. Bausch & Lomb Optical Co., Dept. CUB, 635 St. Paul St., Rochester 2, N. Y. (Key No. 525)

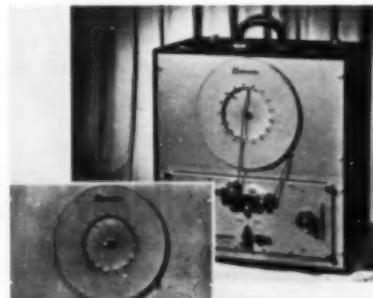
### Steel Seat Ends

Temporary seating for any purpose can be quickly set up with S and R seat ends and rented, borrowed or school owned lumber. The seat ends are made of welded steel with electro plated bolts, treated to prevent rusting. When needed, lumber for seat and back is set into the ends, the "lumber-saver" clamps are tightened and the seats are ready for

use. When no longer required, the lumber can be returned or stored and the seat ends clamped together into a small unit for easy storing or they can be transported to another place of need.

The seat ends are especially designed for comfortable seating and a floor brace for two-point contact prevents rocking when the seats are set up. Almost any wood available can be used. For the seat a 2 by 12 inch, two 2 by 6 inch or a 2 by 8 inch plus a 2 by 4 inch plank can be used as well as other combinations. The back requires an 8 inch board and the foot rest a 4 inch board. The usual seat is eight to ten feet long and requires only two seat ends. For longer lumber more seat ends are used. For moving or storing ten seat ends are held as a single compact unit by hook bolts furnished by the manufacturer. Sherman & Reilly, Inc., Dept. CUB, 1st & Broad Sts., Chattanooga 2, Tenn. (Key No. 526)

### Continuous Loop Panel for Tape Recordings



The new Magnecord PT6-EL Continuous Loop Panel makes it possible to repeat recordings using standard sized tape without rewinding them to the original spool for play-back. The beginning and end of the tape are joined together in an endless loop and messages from 2 seconds to 15 minutes long can be played continually. The new unit will hold up to 600 feet of standard tape and can be rack-mounted or used as a portable combination. Illustration shows it used in conjunction with the Magnecord PT6-AHX and PT6-H adapter panel, both mounted in a PT6-MA case.

Tape recordings used for analysis and study can be replayed automatically with the new unit. The continuous loop of tape feeds on to the outside of the stationary storage reel, winds inside and then comes out the center of the reel down through the normal tape path of the recorder. After passing over the heads, capstan and pressure roller, the tape returns to the outside of the reel. The PT6-EL is finished in Magnecord Gray hammerloid finish and operates equally well with plastic-based or paper-based tape. Magnecord, Inc., Dept. CUB, 360 N. Michigan, Chicago 1. (Key No. 527)

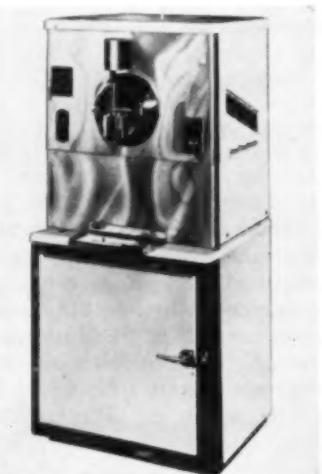
### Asbestos-Glass Fabric

A new fire resistant fabric made of glass and asbestos has recently been announced. The new fabric is composed of glass yarns interwoven with Asbeston, a new asbestos yarn recently developed. Asbeston-glass is produced in the form of gray goods and sold to converters for dyeing and printing in patterns and colors. The fabric is light in weight, stable under atmospheric changes, has high strength, low stretch and good resistance to abrasion. United States Rubber Co., Dept. CUB, Rockefeller Center, New York 20. (Key No. 528)

### Continuous Freezers

A continuous-type soft ice cream freezer, the Sweden Continuous Freezer, Model 1-160, has a number of new features. The draw-off gate is of the plunger type and is electrically controlled through a foot switch. The stainless steel plunger is designed for sharp cut-off of the product being dispensed. The top of the freezer is flat and contains a panel through which a removable heavy gauge stainless steel mix tank and fittings can be reached. From this refrigerated tank, a continuous mix feed device supplies mix and air in proper proportions for overrun control.

The 1950 line of freezers has also been augmented by two batch-feeding freezers, available in both double-head 4 quart and 10 quart sizes. The batch-feeding feature of the new units consists of two 4 gallon stainless steel refrigerated mix holding tanks placed in the top of the freezer and a magnetic solenoid valve for releasing a fresh supply of mix into the rear of the cylinder. The mix tanks are removable, without tools, for easy cleaning. Manual filling during busy periods is eliminated in the new models and continuous operation assured. Sweden



Freezer Mfg. Co., Dept. CUB, 3401 Seventeenth Ave. W., Seattle 99, Wash. (Key No. 529)

## Waste Receivers

The new "H" line of Sanette waste receivers has been redesigned to eliminate the risk of exposure and contamination. A single carrying handle prevents hands coming in contact with infectious waste. The cover is opened by stepping on the pedal and the inner waste pail is easily removed by using the outside handle. When the cover is closed, the entire receptacle may be carried by the same handle. The leakproof, hot-dipped galvanized pail is easy to keep clean and specially processed waxed bag liners are available to keep the pail clean and save frequent washing. The new Model "H" Sanettes are available in 3, 4, 5, 7 and 10 gallon capacities in white enamel, special colors and grained walnut or mahogany. Master Metal Products, Inc., Dept. CUB, 291 Chicago St., Buffalo 4, N. Y. (Key No. 530)

## Booksavers

Made of Pliofilm, Booksavers are tough, fully transparent book covers so designed that the A-9 size will fit any book up to 9 inches in height and the A-10 will fit all books up to 10 $\frac{1}{4}$  inches in height. The Booksaver covers are easy to apply. They protect books from dirt and grime and are impervious to grease and liquids, including most acids. They can be cleaned with a damp cloth or with soap and water and are designed for long, hard usage. Saver Company, Dept. CUB, 1025 Vermont Ave. N. W., Washington 5, D. C. (Key No. 531)

## Improved Dispenser

Improvements in the "French Boy" non-coin operated popcorn dispenser make the new Model "C" more efficient in operation as well as more attractive in appearance. Designed for dispensing already popped corn, the dispenser has a



new type spout which eliminates spillage and the redesigned body is insect-proof and has chrome legs. A movable tray

at the bottom is designed to handle all requirements of sanitation and is easily cleaned. The cover has been redesigned and the unit can be set up in any location desired. A.B.C. Popcorn Co., Inc., Dept. CUB, 3441 W. North Ave., Chicago 47. (Key No. 532)

## Odorless Paint

Classrooms, corridors and offices may now be painted with a new odorless paint recently announced. Known as Keystone One Coat Flat Oil Paint, the product is a finish for use on walls, ceilings and woodwork. The specifically formulated process which makes the paint odorless is the result of 15 years of laboratory experimentation. Rooms can be occupied immediately after painting with the new product. Keystone Paint & Varnish Co., Dept. CUB, 71 Otsego St., Brooklyn 31, N. Y. (Key No. 533)

## Steel Portable Grandstand



Grandstand comfort is combined with portability and economy in the new patented Model "8" steel portable grandstand recently added to the Hussey line. The new Model "8" provides extra room between rows, footboards above the stringers and the patented construction is designed to permit unusually quick erection or dismantling of the stands. Built of high strength steel, the stands are designed for safety under any load and for indefinite use. They are available in 6, 10 and 15 tier sections with other sizes available to order. Hussey Mfg. Co., Inc., Dept. CUB, North Berwick, Me. (Key No. 534)

## Colorslide Projector

The AO Performer 150 Delineascope is a new, popular priced 2 by 2 inch colorslide projector with many of the features of the MC 300. The machine provides high light output on the screen from the 150 watt lamp, yet remains cool enough for comfortable handling. High fidelity of color reproduction and evenness of illumination over the entire picture area are the result of the skilled optical design. American Optical Co., Scientific Instrument Div., Dept. CUB, Buffalo 15, N. Y. (Key No. 535)

## Salvajector



All food scraps can now be disposed of with the new Salvajector, a scrapping and pre-wash machine. In one operation the new model removes food scraps and disposes of them into the sewer in liquid form, prewashes the dishes and saves small tableware which might be lost. Thus hand scrapping and handling of food waste are eliminated and time is saved.

The machine operates the same as a regular Salvajector Scrapping and Prewash Machine except for the food waste disposal feature. Instead of disposing of scraps into the regular Salvajector food waste basket, a fine grinder type disposer shreds the scraps, saturates them with water and discharges the mixture into the sewer. The Salvajector Co., Dept. CUB, 118 Southwest Blvd., Kansas City 8, Mo. (Key No. 536)

## Freeze-Drying Unit

Self-contained and mounted on a flanged floor pedestal, the new Stokes Model 103-FPM Freeze-Drying machine is a completely packaged unit. It consists of a manifold having 24 valve ports, a Freon refrigerated condenser, a high vacuum McLeod gauge and a high vacuum Stokes "Microvac" pump with oil clarifier. It has a batch capacity of 3500 ml. and a capacity of 7500 ml. before defrosting is necessary. F. J. Stokes Machine Co., Dept. CUB, 5900 Tabor, Philadelphia 20, Pa. (Key No. 537)

## Institution Sized Jell-O

A new institution sized package is now available in Jell-O pudding in chocolate, vanilla and butterscotch flavors, each using one gallon of milk. The chocolate and butterscotch flavors are in the 2 pound size and the vanilla in the 1 $\frac{1}{2}$  pound size. The new packaging supplements the regular 5 pound institution size. General Foods Corp., Dept. CUB, 250 Park, New York 17. (Key No. 538)

## Product Literature

- "Guest Room and Dormitory Furniture, Group 5000, by Carrom" is the title of a folder released by Carrom Industries, Inc., Ludington, Mich. The folder is beautifully illustrated with photographs of beds, chairs, tables, chests, desks, dressers and other furniture and of two suggested room arrangements. One page is devoted to facts concerning the construction of "Carrom-Built" furniture and each illustrated item is described. (Key No. 546)
- "Nesbitt, the Unit Ventilator that sets a New Standard of Classroom Comfort" is the title of a booklet recently released by John J. Nesbitt, Inc., Philadelphia 36, Pa. Charts, diagrammatic and illustrative drawings and photographs accompany the informative text. Subjects covered include Protecting Comfort and Health in Your Schoolrooms, Cycles of Control, How the Syncretizer Works, Comfort Control, Uniform Air Discharge and Components of the Nesbitt Package. (Key No. 547)
- A comprehensive discussion of "Duplicators and Supplies for Every Duplicating Process" is presented in the new Catalog 50, "Heyer Quality Products," published by The Heyer Corp., 1850 S. Kostner Ave., Chicago 23. Fully indexed, with marginal subject tabs for quick reference, the catalog presents educational information on the subject of duplicating by stencil, spirit or gelatin process, and gives full data on the full line of equipment and supplies offered by the company, including the new portable addresser recently introduced. (Key No. 548)
- New items for the laboratory which have recently been developed by W. M. Welch Scientific Co., 1515 Sedgwick St., Chicago 10, are described in pamphlets released by the company. Welch e/m apparatus in simplified design for laboratory experiments is described in a two page leaflet. The new stainless steel triple-beam trip scale No. 4048 with pan and all three beams of stainless steel is described and illustrated in a comprehensive four page folder. (Key No. 549)
- A variety of practical suggestions on efficient institutional dishwashing is incorporated in a new illustrated bulletin, "Better Ways to Cleaner Wares," offered by Calgon, Inc., Hagan Bldg., Pittsburgh 30, Pa. Actual photographs illustrate the 16 page booklet which discusses the use of "Calgonite" mechanical dishwashing compound, the Calgonite Mechanical Dispenser, the Calgonite Electronic Control which automatically maintains washing solution at effective strength without waste and the company's special compounds. (Key No. 550)
- Recommended outline specifications for gymnasium and other large area floor construction are available from the research department of the Maple Flooring Manufacturers Association, Box 678, Oshkosh, Wis. (Key No. 551)
- The new Catalog No. 211 of "Crown Institutional Equipment" has recently been published by the Crown Institutional Equipment Co., 218 S. Wabash Ave., Chicago 4. The 52 page book has a section on expendable supplies, including school and office furniture. It also introduces an adjustable typewriter desk, wood and steel duet student desks and steel combination filing and storage units. Two color pages illustrate the company's line of bedroom furniture. (Key No. 552)
- The complete new line of Universal Dishwashers is illustrated and described in a new 25 page catalog published by Universal Dishwashing Machinery Co., 49 Windsor Place, Nutley, N. J. The new models include a Hi-Speed scrapper, two new Revolving Brush type glass washers, two new combination dish, glass and silver washers, a new roll-top dishwasher and a new three tank model with a built-in Hi-Speed scrapper. The catalog describes the improved Swing-Wash Action available in a number of models. (Key No. 553)
- An informative booklet on "The Diamond 'Utiliscope'" gives practical illustrations of how this wired television can be employed in teaching, testing, checking, inspecting, watching and other ways in institutions and businesses. The "Utiliscope" is a television unit which operates within the organization for observation, through the wired units, at varying distances. Its many possible uses are illustrated in the booklet issued by the Diamond Power Specialty Corp., Lancaster, Ohio. (Key No. 554)
- Detailed information is given in Catalog 88-8, issued by Kewanee Boiler Corp., Kewanee, Ill., on "Kewanee Square-Heat Type 'R' Boilers." This equipment is described as "a steel boiler for heating medium sized buildings dependably with high efficiency." Descriptive information, specifications and illustrations are augmented by blueprint type layouts for suggested installations. (Key No. 555)
- A "Periodic Inspection Record for Maintenance of Fire Extinguishers" is available from the Ansul Chemical Co., Fire Extinguisher Div., Marinette, Wis. The chart is designed to help inspectors keep accurate records of their extinguishers to ensure that they are always in working condition. Space for 26 inspections of up to 38 extinguishers is provided. (Key No. 556)
- An attractive, illustrated folder on "Michaels Bronze Plaques" has been published by The Michaels Art Bronze Company, Inc., 231 Court Ave., Covington, Ky. The various types of memorials, building plaques, honor rolls and name plates available from the company are illustrated and described. (Key No. 557)
- Ideas and suggestions on modern pool layouts together with complete details on the correct drainage fittings to be used in the construction of new pools or the remodeling of old pools are given in a new 32 page Swimming Pool Drainage Products Manual SP-3 published by Josam Mfg. Co., 1302 Ontario, Cleveland 13, Ohio. In addition to the material on pools, the manual gives full details on foot baths, shower rooms, interceptors, shower mixing valves and other accessories and presents 13 pages of drawings of typical designs for pool. (Key No. 558)
- The new Home Economics Teacher's Source Book, "A Basic Breakfast Pattern," has been published by the Cereal Institute, Inc., 134 S. La Salle St., Chicago 3, after a number of years of research on the subject of the importance of breakfast and breakfast eating habits. Edited by Dr. E. V. McCollum, Professor Emeritus of Biochemistry, The Johns Hopkins University, the book gives the results of surveys of breakfast habits, discusses a basic breakfast, gives charts on nutritional value of the breakfast, lists recommended breakfasts, and gives the story of the scientific study of the effects of altered breakfast habits. A bibliography is included. (Key No. 559)

## Suppliers' News

Angelica Uniform Co., 1419 Olive St., St. Louis 3, Mo., is the new name of the company formerly known as Angelica Jacket Co. The company manufactures a complete line of washable service uniforms for men and women. The name change does not affect the internal or external operations of the company, according to the announcement.

The Incinerator Institute of America, 420 Lexington Ave., New York 17, was formed on June 19, 1950, for the purpose of furnishing accurate and impartial information on the products of its industry. The Institute will concern itself with the development of standard performance specifications, will work with states on the elimination of stream pollution and insanitary disposal of garbage, will help municipalities in the writing of ordinances and regulations and will cooperate with the Smoke Prevention Association of America, Inc., in its program. Stewart N. Clarkson is Secretary-Treasurer of the new Institute.

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520 Acme Sprinklers  
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Mop Hanger

522 The Hood Rubber Co.  
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523 The American Floor Surfacing Machine  
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Improved Senderplane

524 Remington Rand Inc.  
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525 Beusch & Lomb Optical Co.  
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526 Sherman & Reilly, Inc.  
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547 John J. Nesbitt Inc.  
Unit Ventilator Booklet

548 The Heyer Corp.  
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**Key**

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Apparatus Folders

550 Calgon, Inc.  
"Better Ways to Cleaner Wares"

551 Maple Flooring Manufacturers Assn.  
Gymnasium Floor Specifications

552 Crown Institutional Equipment Co.  
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553 Universal Dishwashing Machinery Co.  
Catalog

554 Diamond Power Specialty Corp.  
"Diamond 'Utiliscope'"

555 Kewanee Boiler Corp.  
"Square-Heat Boilers"

556 Ansul Chemical Co.  
"Inspection Record"

557 The Michael Art Bronze Co.  
"Michaels Bronze Plaques"

558 Josam Manufacturing Co.  
Manual SP-3

559 Cereal Institute Inc.  
"A Basic Breakfast Pattern"

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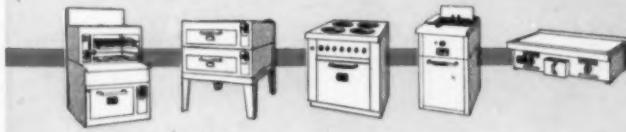
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